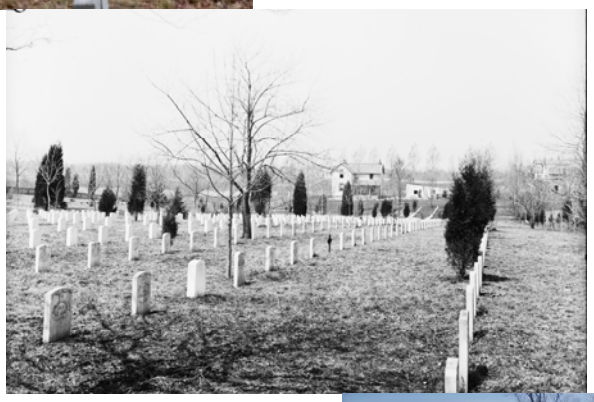
PRESERVATION ASSESSMENT OF ST. ELIZABETHS EAST CAMPUS CEMETERY, WASHINGTON, DC



Chicora Research Contribution 514

PRESERVATION ASSESSMENT OF ST. ELIZABETHS EAST CAMPUS CEMETERY, WASHINGTON, DC

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CHICORA RESEARCH CONTRIBUTION 514

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MANAGEMENT SUMMARY

The St. Elizabeths East Campus cemetery is an exceptionally historic resource for the District of Columbia, and especially for the St. Elizabeths hospital grounds. In fact, the cemetery is a portion of the grounds listed on the National Register of Historic Places. This is recognized by the District of Columbia in a memorandum of agreement signed by the District of Columbia Historic Preservation Office (DCSHPO), and the Advisory Council on Historic Preservation (ACHP). The District of Columbia's Department of Mental Health recognizes the importance of the cemetery in the funding for this study.

Cemeteries, however, are very different from virtually all other types of properties that the Department of Mental Health or the District of Columbia administers:

- They are sacred sites – consecrated within are the remains of loved ones deserving of the utmost of care and respect.

- They are artistic sites, such as sculpture gardens or outdoor museums, representing permanent collections of three-dimensional artifacts requiring the same level of care that museums provide. Even the sparse East Campus Cemetery contains over a thousand government markers.

- They are archives – storehouses of genealogical information, representing our individual and collective pasts. At the East Campus Cemetery there may be no better record of pre-1917 interments.

- And they are scenic landscapes – like parks or open spaces, but requiring far more focused and specific care.

In sum, cemeteries are social, historic, architectural, and archaeological artifacts. When there is little else physically remaining of a community's earliest history, the local cemetery provides a unique tie to the past that would otherwise be lost.

Therefore cemeteries require very specific consideration and different care from the other types of open sites found in most communities.

In the case of the St. Elizabeths East Campus cemetery, the cemetery includes both military dead from the Civil War and after, as well as what were termed "friendless" patients, buried by the hospital. The cemetery reflects an extraordinarily rich history; yet, this history was not sufficient to prevent deferred maintenance from taking a significant toll on the cemetery during the last quarter of the twentieth century.

Over time the cemetery became grown up in brambles, briars, honeysuckle, and even trees. Monuments were vandalized. The fence was breached and partially torn down. The original pathways were lost. The sexton's cottage was allowed to deteriorate and was eventually demolished. The road was no longer maintained. Even the stately and beautiful trees in the cemetery were ignored to the point that several died and others are today compromised. As a result of these years of deferred maintenance, a number of issues – many of them critical and costly – require the immediate attention of the District of Columbia.

This study occurs at a time when a National Consumers Memorial is being planned for St. Elizabeths. Its goal is to commemorate the thousands of people who died in state psychiatric hospitals—many buried in unmarked graves just like those at St. Elizabeths.

We understand that this memorial includes the re-creation of the pathways in the original cemetery design. It must, of necessity, also consider issues such as visitor security, an appropriate turf, parking, site interpretation, and on-going maintenance. These are all issues – among others – that are addressed in this study. Our goal is certainly not to "sugar coat" the reality of life at St. Elizabeths. Rather our goal is to ensure that not only is the cemetery itself preserved, but that it represents a respectful memorial to those buried there.

This report evaluates the identified needs, classifying them into three broad categories:

- Those issues that are so critical – typically reflecting broad administrative issues and issues that if delayed will result in significantly greater costs – that require immediate attention during the current fiscal or calendar year.

- Those issues that, while significant and reflecting on-going deterioration and concerns, can be spread over the next 2 to 3 years. This allows some budgeting flexibility, but this flexibility should not be misconstrued as a reason to ignore the seriousness of the issues.

- Finally, those issues that represent on-going maintenance and preservation issues. These costs can be spread over the following three to five years. Like the Second Priority issues, this budgetary flexibility should not be interpreted as allowing these issues to slide since further delay will only increase the cost of necessary actions.

The First Priority Issues have a budget of approximately $149,000.

The single largest cost is for a replacement, high security fence. This will help ensure the safety of visitors as well as the preservation of the graves and memorials. It will also clearly demarcate the cemetery boundaries and ensure that those boundaries are not violated. The high security fence is of special concern along the north boundary. To the east and west a normal industrial fence is sufficient. To the south we recommend consideration be given to replicating one of the property's original wood picket fences.

Other Priority One tasks include inspection and pruning of the trees, recordation and mapping of the fence (currently under contract), and completion of the vegetation clearing. Also included are a variety of administrative or maintenance policy issues that require approval by St. Elizabeths Hospital.

Second priority issues are estimated to cost about $204,500, although this may be spread out over several years.

The single most costly – and most complex – task is to establish a turf in the approximately 6 acres of cemetery that are today vines and open ground and to overseed and improve the turf that exists in the remaining 3 acres. This work will also involve establishing either a temporary above grade water supply or, preferably, installing a below grade water line along the east-west path with spigots every 200 feet. This would allow watering as needed.

Another critical task involves the resetting of approximately 117 stones, replacement of about 76 missing stones, and repair of at least 10 others. This work is critical to ensure that the military graves are appropriately honored.

Associated with the turf is the removal of the existing unused asphalt road in the cemetery, as well as the creation of an appropriate pre-emergent and post-emergent weed control program, at least for the first three to four years until the turf becomes well established.

Shifting away from maintenance, we also recommend additional funding for further historical research. This work could focus on the early history of the cemetery, as well as specific groups. Of special interest are the Native Americans at St. Elizabeths, including some in the cemetery that can be specifically traced to the infamous Hiawatha Insane Asylum in Canton, South Dakota. We recommend that the District seek to have Native American spiritualists come to the cemetery for prayers over these forgotten graves.

The items listed as third priority are those that can be spread over five years – perhaps extending into FY 2013. These issues, however, are no less significant and will have a cost of about $19,000 (not reflecting inflation or continued deterioration; nor does the cost reflect the on-going salaries of the staff needed to maintain the cemetery).

This work includes the creation of a brochure for the cemetery, using the historical information gathered in the second phase of work.

The third priority items include identification and regulatory signage.

While the allocation of at least $372,500 is not inconsequential, it represents a small sum given the extensive work being undertaken at the new St. Elizabeths Hospital or the one million dollars proposed for the National Consumers Memorial. In addition, much of the work necessary at the cemetery is the result of deferred maintenance, with damage accumulating over the cemetery's 150 year history and especially over the last 30 years. Failure to act will result in the loss of this historic resource.

It is equally critical that the cemetery not be "lost" in the planning process. Long-term care and maintenance are critical for the resource's survival.

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The Project

St. Elizabeths is located east of the Anacostia River in southeast Washington (Figure 1). It dates back to 1855 when it was created as the Government Hospital for the Insane. The hospital's initial mission, according to its founder, Dorothea Dix, was to provide the "most humane care and enlightened curative treatment of the insane of the Army, Navy, and District of Columbia." St. Elizabeths was the first and only federal mental facility with a national scope.

Figure 1. St. Elizabeths East Campus in Washington, DC.

In 1987 the hospital was transferred by the federal government to the District to become part of its public mental health system. Today the hospital provides intensive, inpatient care for individuals with serious and persistent mental illness who need the security and structure to assist in their recovery. It also provides mental health evaluations and care to patients committed by the courts.

St. Elizabeths was long ago divided into two parts by what is today called Martin Luther King, Jr. Avenue, creating the West Campus – west of this road – and the East Campus – east of this road. The GSA is currently steward of the West Campus; the East Campus is operated by the District of Columbia.

This current work is on the East Campus, which is operated by the District of Columbia. The East Campus cemetery was created when the West Campus cemetery became full and went through several episodes of expansion. While the West Campus cemetery is older, the East Campus cemetery is far larger and is actually in better overall condition. It also contains a broad range of intriguing historical questions.

In September 2008 Ms. Frances McMillen, a contractor with St. Elizabeths Hospital in Washington, DC, contacted Chicora Foundation and requested information concerning our ability to provide preservation planning assistance for the East Campus cemetery similar to that we had provided GSA for the West Campus cemetery (Trinkley and Hacker 2007). After providing some basic information, we were contacted by Mr. Richard J. Warsh, Director of Facility Planning for the Department of Mental Health in Washington.

By September 25, we were focused on two specific tasks: conducting an assessment of the cemetery that would culminate in a preservation assessment and an initial test to determine the usefulness of using a penetrometer to identify the many unmarked graves present in the cemetery. By early

November 2008 our proposal was accepted and the project was placed under the direction of Dr. Jogues R. Prandoni, Forensic Services at St. Elizabeths Hospital.

Because of both the 2009 presidential inauguration and winter weather conditions, work at the cemetery did not commence until Wednesday, March 11, 2009 and continued in Washington, DC through March 13. The investigations were conducted by the authors and Ms. Nicole Southerland.

Preservation Fundamentals

Preservation is not an especially difficult concept to grasp, although the key principles are not always clearly articulated. The fundamental concepts are well presented in the Secretary of the Interior's Standards for Preservation (see Table 1).

This document reminds us – at least at a general level – of what caregivers need to be thinking about as they begin a cemetery preservation plan. Those responsible for the care of the East Campus cemetery should be intimately familiar with the eight critical issues it outlines.

For example, all other factors being equal, a cemetery should be used as a cemetery – not to walk dogs or as a playground. And until the caregivers are able to do what needs to be done, it is their responsibility to make certain that the site is preserved – it must not be allowed to suffer damage under their watch.

Caregivers must work diligently to understand – and retain – the historic character of the cemetery. In other words, they must look at the cemetery with a new vision and ask themselves, "what gives this cemetery its unique, historical character?" Perhaps it is the landscape, the old and stately trees, the large boxwoods, or the magnificent arborvitae. Perhaps it is the very large proportion of complex monuments, or the exceptional slate markers. It may simply be that it is a unique representation of a cemetery type rarely seen in a rapidly developing urban setting. Whatever it is, those undertaking its care and preservation become the guardians responsible for making certain those elements are protected and enhanced (whether they are particularly appealing to the caregivers or not).

Whatever conservation efforts are necessary must be done to the highest professional standards; these conservation efforts must be physically and visually compatible with the original materials; these conservation efforts must not seek to mislead the public into thinking that repairs are original work; and the conservation efforts must be documented for future generations. If the caregivers aren't conservators, it is their responsibility as the stewards of the property to retain a conservator appropriately trained and subscribing to the Code of Ethics and Standards of Practice of the American Institute for Conservation (AIC).

The Secretary of the Interior reminds those responsible for the resources that each and every cemetery has evolved and represents different styles and forms. It is the responsibility of caregivers to care for all of these modifications and not seek to create a "Disney-land" version of the cemetery, tearing out features that don't fit into their concept of what the cemetery "ought" to look like.

Likewise, caregivers are reminded that there will be designs, monuments, and other features that characterize the cemetery – and the caregivers are responsible for identifying these items and ensuring their preservation. Caregivers must be circumspect in any modifications, ensuring that they are not destroying what they seek to protect.

Before acting, those responsible for preservation are required as good and careful stewards to explore and evaluate the property, determining exactly what level of intervention –

Table 1.
Secretary of the Interior's Standards for Preservation

1. A property will be used as it was historically, or be given a new use that maximizes the retention of distinctive materials, features, spaces, and spatial relationships. Where a treatment and use have not been identified, a property will be protected and, if necessary, stabilized until additional work may be undertaken.

2. The historic character of a property will be retained and preserved. The replacement of intact or repairable historic materials or alteration of features, spaces, and spatial relationships that characterize a property will be avoided.

3. Each property will be recognized as a physical record of its time, place, and use. Work needed to stabilize, consolidate, and conserve existing historic materials and features will be physically and visually compatible, identifiable upon close inspection, and properly documented for future research.

4. Changes to a property that have acquired historic significance in their own right will be retained and preserved.

5. Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.

6. The existing condition of historic features will be evaluated to determine the appropriate level of intervention needed. Where the severity of deterioration requires repair or limited replacement of a distinctive feature, the new material will match the old in composition, design, color, and texture.

7. Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.

8. Archaeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.

what level of conservation – what level of tree pruning – is actually necessary. And where it is necessary to introduce new materials – perhaps a pathway – into the cemetery, they must do their best to make certain these new elements are not only absolutely necessary, but also match the old elements in composition, design, color, and texture. In other words, if the cemetery has brick pathways, they would be failing as good stewards if they allowed concrete pathways – especially if the only justification was because concrete was less expensive.

Where conservation treatments are necessary, the Secretary of the Interior tells stewards that they must be the gentlest possible. However phrased – less is more – think smart, not strong – caregivers have an obligation to make certain that no harm comes to the resource while under their care. And again, one of the easiest ways to comply is to make certain that caregivers retain a conservator subscribing to the ethics and standards of the American Institute for Conservation.

Finally, the caregivers must also recognize that the cemetery is not just a collection of monuments and the associated landscape – the cemetery is also an archaeological resource. They must be constantly thinking about how their efforts – whether to repair a monument, put in a parking lot, or resurface a path – will affect the archaeological resources – archaeological resources that are the remains of people buried at the cemetery by their loved ones.

These are especially critical issues for the East Campus cemetery. The campus itself is a National Historic Landmark and a District of Columbia historic district. It is absolutely critical that the Secretary of Interior Standards for Preservation be consistently applied. In addition, past modifications at the cemetery have taken place with little or no documentation, leaving caregivers guessing as to the nature of the work, the reason it was done, how it was conducted, and even who did the work. Original fabric has deteriorated from lack of care. Even the landscape has been compromised by development activities on surrounding parcels and a lack of careful

attention to critical management and maintenance issues.

Our first recommendation, therefore, is that those assuming care for the cemetery become thoroughly familiar with the Secretary of the Interior's Standards for Preservation and reaffirm their responsibility as stewards of this historical resource to ensure that future preservation efforts are consistent with sound preservation principles and practices. These standards must become "talking-points" for all future discussions and decisions made concerning the cemetery.

The Setting and Context

The cemetery that is studied in this project is situated on what is called the East Campus, at the rear or eastern boundary of the property (Figure 2). It is at the end of Dogwood Drive; to the north, off the St. Elizabeths property is Robinson Place. An apartment complex just beyond the cemetery has been closed and is waiting redevelopment. To the north of Suitland Parkway is the Elvans Road Public Housing. The cemetery measures about 1,530 by 260 feet, covering a little more than 9 acres.

Figure 2. St. Elizabeths Hospital. That portion to the left of Martin Luther King Blvd. is the West Campus. To the right is East Campus. The cemetery is shown at the eastern corner of the property.

Historically, St. Elizabeths was outside of the District's business core, overlooking the Anacostia River and providing a rural setting that was thought to promote the physical and mental health of its patients. Over time, the District's Ward 8 has grown up around the hospital grounds.

To the north are the neighborhoods of Barry Farm and Buena Vista. Barry Farm is a small inner-city neighborhood. It was originally a farm owned by James Berry in the mid-nineteenth century. After the Civil War the property was acquired by the Freedman's Bureau and was parceled out as settlements for freed slaves. By the 1950s the city had built Suitland Parkway, isolating the community between busy traffic arteries. In 1954 the Redevelopment Land Agency, working on behalf of the District, purchased much of the property and constructed a large, public housing project that is still present. Only a few frame houses, mostly along the fringe of Barry Farm at St. Elizabeths, evidence remnants of the original freedmen community. While possibly the oldest African American neighborhood in Washington, it is today almost entirely occupied by public housing projects and it has a reputation for violent crime, poverty, and neglect. In contrast, the homes making up the Buena Vista neighborhood to the northeast tend to be privately owned by higher-income residents. The topography is hilly, resulting in narrow and winding roads. However, these elevations also

provide some with expansive views of downtown Washington.

To the south of St. Elizabeths is Congress Heights. This is a largely residential, poor inner-city neighborhood. Nevertheless, it is also the most economically diverse, containing the largest commercial district in Ward 8, along Martin Luther King Jr. and Malcolm X Avenues. The neighborhood, consisting of garden apartments and some older single-family bungalows, began in the late 1920s when it was established as the end of the Washington Streetcar line. The area experienced considerable urban neglect for several decades. Recently, a number of developments, valued at over $450 million, have been conducted. Many include St. Elizabeths in this neighborhood and see the property as encouraging additional development. Beyond Congress Heights is Bellevue, dominated by 1940s detached homes and yards.

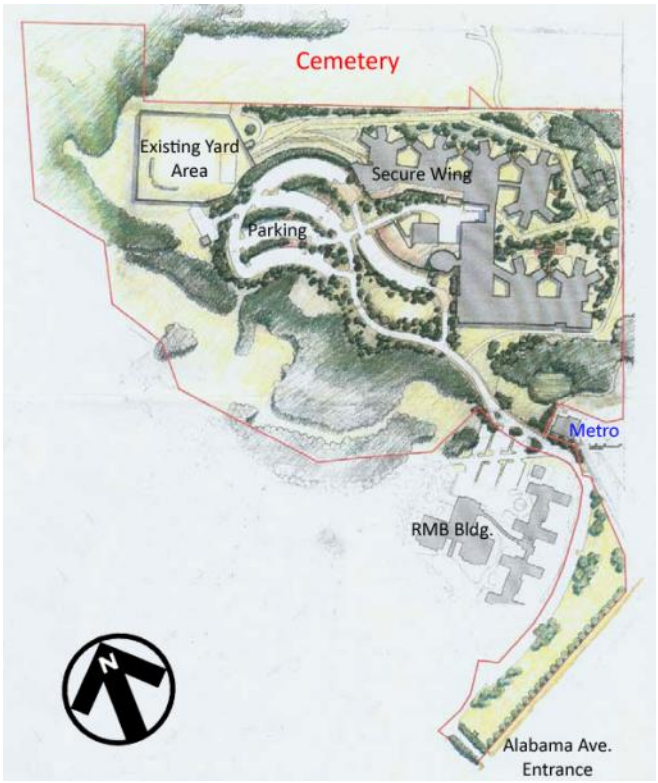

Figure 3. Construction of the new forensic hospital facility in proximity to the cemetery.

To the east of St. Elizabeths is Douglass, named for Frederick Douglass, whose homestead is about a mile north. The neighborhood is on top of a high ridge, but the area is almost entirely occupied by two public housing complexes: Douglass Dwellings and Stanton Dwellings.

Thus, urban renewal and real estate speculation aside, St. Elizabeths is today situated in a regrettably poor section of the District. Historic preservation has been of little concern, as has infrastructure maintenance. Looking at the Ward as a whole, it is predominately African American (92.4%), the poverty rate is 36% (the highest rate of the District), the unemployment rate is 22.5%, and only 21.4% of the homes are owner-occupied (the lowest rate of the District). Educational attainment is the lowest in DC, with about two-thirds having a high school degree, but only 8% with a college diploma.

Surrounding the East Campus cemetery are census tracts 73.4, 74.4, and 74.6. These particular neighborhoods are among the poorest in Ward 8. For example, only 7.1% of the structures are owner occupied in census tract 74.4; less than half have a high school degree and none have a college education. Nearly two-thirds are below the poverty level. The median family income is only $9,353.

Crime statistics for Police Service Area 704 to the north of St. Elizabeths show that violent crime has increased 1% (184 to 186) and property crime has increased 6% (403 to 426) over the past year. Theft is up by 19%. To the south, in Police Service Area 705, violent crime has increased by 11% (313 to 336), while property crime is down by 10% (631 to 571).

Access to the East Campus is typically off Martin Luther King, Jr. Avenue SE, using Gate 4, or off Alabama Avenue, using Gate 5.

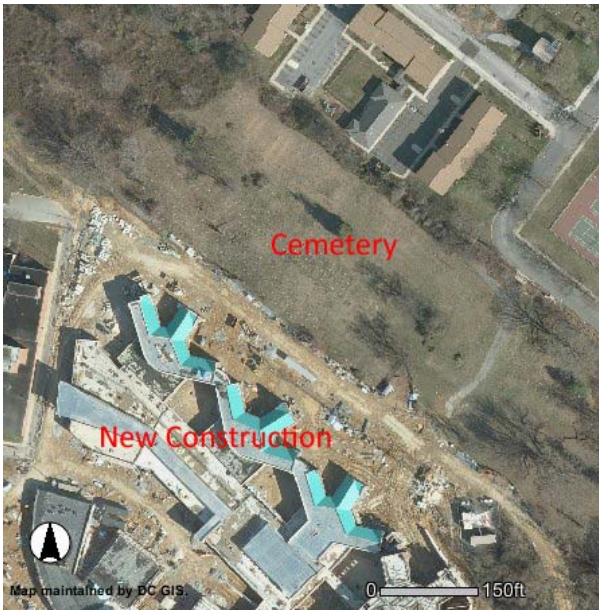

Figure 4. 2008 aerial showing the new construction and its proximity to the cemetery.

The Gate 4 entrance leads to Sycamore and eventually to Dogwood. Gate 5 leads directly to Dogwood. In both cases visitors continue to John Howard Pavilion, the hospital's maximum security forensic psychiatric facility.

Significant changes, however, are already in progress. The John Howard Pavilion is being replaced with a new 450,000 square foot, state-of-the-art hospital facility being built immediately to the east (Figure 3 and 4). The old building will be demolished, although the recreation yard wall may be retained.

This will place the cemetery, immediately to the north, in a very different context. Instead of a woods buffer along much of the cemetery's southern edge, there will be a double security fence and a very modern (albeit attractive) building. This hospital will dominate much of the cemetery landscape with little or no buffer (Figures 4 and 5). Also to the south is a 63 foot tall communication tower for the District of Columbia (FCC Registration No. 1059783) that was constructed in August 1999 (Figure 5).

The situation is no better to the north, where the cemetery is in very close proximity to now abandoned apartment units. The eastern portion of the cemetery is lower than the Robinson Place road access, so the road and its guardrail looms over the cemetery visitor (Figure 6).

To the west is the stream valley landscape identified in the *Saint Elizabeths East Redevelopment Framework Plan* (RTKL 2008). Unfortunately, this area was also historically used for landfill of fly ash debris. As a result, both the topography and vegetation are today compromised.


Figure 5. The landscape to the south of the cemetery is dominated by the new hospital and the DC antennae tower.

When the East Campus was transferred from the federal government to the District, the District of Columbia Historic Preservation Office (DCSHPO), and the Advisory Council on Historic Preservation (ACHP) signed a Memorandum of Agreement (MOA). This MOA recognized that the transfer would have an effect on the historic

Figure 6. To the north of the cemetery are vacant apartments (top) and the elevated Robinson Place roadway (bottom).

campus – including the cemetery – and outlined steps for preserving, rehabilitating and retaining its contributing historic, archaeological and landscape resources. Although some consideration of historic resources has been provided in the redevelopment plan (RTKL 2008), that document ignores the cemetery and its long-term preservation needs. In fact, a variety of suggested development activities will have a significant detrimental effect on the cemetery, including the creation of a road linking Suitland parkway with Alabama Avenue, the concept of infill development immediately adjacent to the cemetery, and the proposal to encourage 6-8 story at the west end of the cemetery. Moreover, the document provides no acknowledgement that the anticipated development will have significant, and long-term, secondary effects on the cemetery and other historic resources. In the District's rush to develop St. Elizabeths, there appears to be no clear or consistent concern for the cemetery as not only an integral historic resource, but also the burial location of several thousand St. Elizabeths patients.

The MOA requires the submission of plans to the DCSHPO and ACHP for review and approval prior to implementation. While the developments to the north were existing at the time, the construction to the south was not and we are at a loss to understand why no effort was made to better buffer the cemetery from the visual intrusion of these features. We hope that the DCSHPO and ACHP will be more proactive in their future efforts to preserve, protect, and enhance the context of the cemetery.

We recommend, minimally, that there be a setback at the west edge of the cemetery, that visual screening be used to eliminate visual intrusion, that steps be taken to minimize noise intrusion, and that the building height be reduced.

Ignoring the existing visual distractions and intrusions, the cemetery is dominated by its generally level ridgetop topography, size, and scarcity of markers. Another feature that stands out is that while many graves in most sections are unmarked, a very close inspection reveals that the seemingly level terrain is actually undulating, revealing hundreds of graves – row upon row of nameless burials forming the 9 acre burial grounds. Where there are monuments, most are government issued military stones and this, too, establishes the mood of the cemetery. We suspect that most visitors will be overwhelmed by the size and solemn simplicity of the cemetery.

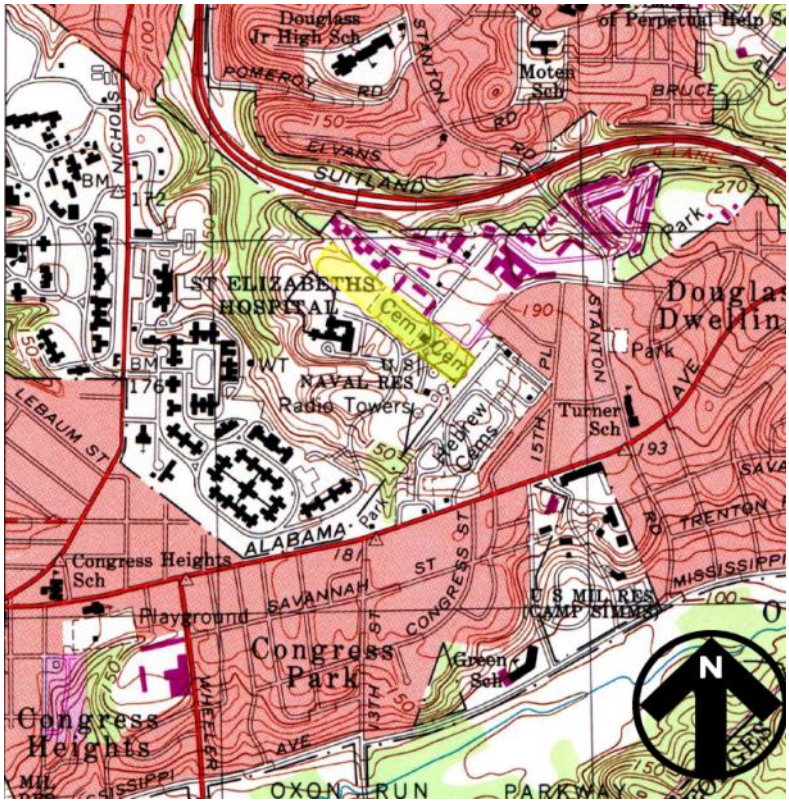

Figure 7. Portion of the USGS Anacostia 7.5′ topographic map showing the East Campus cemetery in yellow. Contours are in feet with a 10′ interval.

While we may get an impression of the cemetery, there are historical aspects that are more difficult to grasp today. Not only have the surrounding settings changed, but the cemetery's landscape was once more vegetated. There were formal pathways laid out in gravel. The oldest section contained the sexton's cottage and associated buildings. To some degree the result is a more sterile environment or an appearance of a cemetery that has been abandoned. Although the gradual encroachments of modern buildings cannot be changed, it is possible to soften the appearance of the cemetery.

Factors Affecting the Landscape Character

The District of Columbia covers an area of about 65 square miles on the northeast side of the Potomac River, adjacent to the mouth of the Anacostia River. The District is situated in two physiographic provinces, the Mid-Atlantic Coastal Plain and the Piedmont Province. The two regions are separated by the Fall Line, which roughly follows Rock Creek from southwest to northeast across the District. St. Elizabeths is entirely found within the Coastal Plain, in spite of the rolling topography. Elevations range from sea level in the southern part of Washington, where the Anacostia and Potomac are tidal estuaries, to 420 feet above mean sea level (AMSL) in Tenleytown to the west of the city.

While the East Campus cemetery gives the overall appearance of being relatively level, it actually exhibits a range in elevations. At the northwestern edge the cemetery is low, about 165 feet AMSL, quickly rising to about 178 feet AMSL toward the south. The middle of the cemetery dips to about 169 feet, before again rising toward the north end, almost reaching 180 feet AMSL. This is very imperfectly shown on the USGS topographic map (Figure 7).

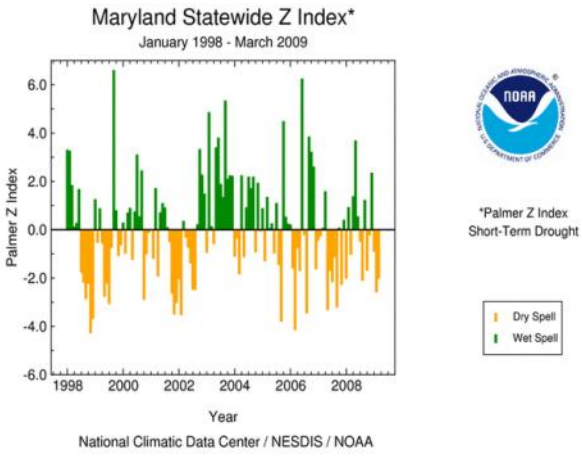

Figure 8. Palmer drought index for Maryland.

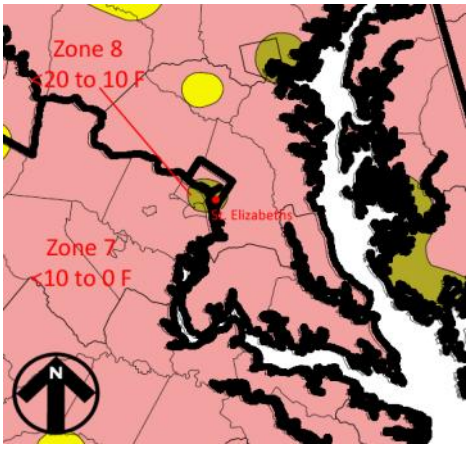

Figure 9. Plant Hardiness Zones in the vicinity of Washington, DC.

The geology of the St. Elizabeths area is dominated by the Potomac Group's clay and silt facies, along with River Terrace Deposits. The dominant soil in the vicinity of St. Elizabeths is the Beltsville-Urban Land Complex with 0-8% slopes. These are gravelly and silty soils that are generally found on hilltops in the Coastal Plain and on old Coastal Plain terraces. A naturally occurring dense layer is found at depths of 2 to 2.5 feet. Because of this dense layer, both drainage and permeability are slow. This often results in a perched seasonal high water table at the depth of the dense layer. The soils would have presented clear difficulties to burial parties, especially during the winter and early spring when the water table would be high.

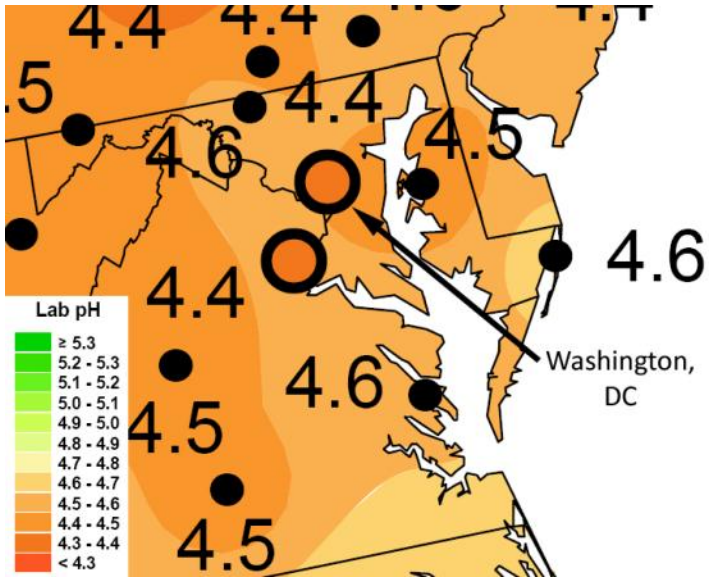

Figure 10. pH levels of rainfall in the District of Columbia (pH of 7.0 is neutral, 6.9 and lower is acidic). The levels in the District were lower than 4.3 in 2007.

The Urban Land Complex consists of the area at the western edge of the cemetery and beyond. As previously mentioned, this area was historically used as a landfill for fly ash, as well as possible medical wastes (RTKL 2008:28).

The District of Columbia is characterized by chilly, damp winters and hot, humid summers. The normal daily mean temperature is 58°F, ranging from 35°F in January to 80°F in July. The average annual relative humidity, however, ranges from 75% in the morning to 53% in the afternoon.

Precipitation averaged 39.4 inches yearly from 1971 through 2000 and is distributed fairly evenly throughout the year, with an average annual precipitation of about 39 inches. Figure 8, however, reveals considerable potential for drought. While 2002-2004 were generally wet years, the period between 2004 and 2009 show episodes of considerable drought. At the time of this study the District and most of Maryland are in a moderate drought although no water restrictions have been enacted.

The area has an average growing season of about 207 days, although this will vary by specific location, with low areas often evidencing late frosts. Figure 9 shows that while the District of Columbia is adjacent to Plant Hardiness Zone 7, the District and area of St. Elizabeths is found in Zone 8, with average annual minimum temperatures of 10 to 20°F.

This is often classified as an area of Northern or Cool Season turfgrass, although

technically it is a transition zone – an area where neither cool nor warm season species are ideally suited. As a result, it is one of the most difficult areas in which to manage turf.

A factor not only affecting the landscape, but also stone preservation is the level of pollutants. Immediately north of the cemetery there are hazardous wastes stored at Johnson JHS; additional wastes are stored further north at Douglass JHS. To the southwest the EPA has identified air emissions at King Amoco and King Texco Chevron. Both air emissions and hazardous waste are identified at Long Brothers Cleaners, as well as at the hospital site itself. Based on monitoring in District, the annual mean of NO_2 ranges from 0.014 to 0.018 ppm and the annual mean of SO_2 is 0.006 ppm. These levels result in significant levels of acid rain (see Figure 10) and thus the deterioration of marble and many sandstones.

We fear the pollution levels will increase with the proposed construction of a connector road from Suitland parkway to Alabama Avenue.

Recommendations

All decisions regarding modifications, alterations, additions, or other actions affecting the East Campus cemetery should be carefully evaluated against the Secretary of the Interior's Standards for Preservation.

The remaining historic fabric and context of the cemetery should be protected. In particular existing intrusive elements should be removed, buffered, or minimized where possible; new intrusive features should be prevented.

The redevelopment plan for the East Campus does not adequately or appropriately consider primary or secondary impacts to the cemetery. We minimally recommend a substantial setback at the west edge of the cemetery, that visual screening be used to eliminate visual intrusion, that steps be taken to minimize noise intrusion, and that the proposed building height be reduced from the proposed 6 to 8 stories to no higher than 3 stories.

Much of the cemetery's character derives from the solitude, simple simplicity, and undulating topography. These elements have particular importance and should be closely guarded.

HISTORIC CONTEXT

We were not tasked with conducting any historical research for this project. As a result, this section will use largely secondary sources in order to construct a context to better understand the East Campus Cemetery. Those seeking a more complete understanding of the hospital should consult McMillen (2008). More information concerning the West Campus Cemetery may be found in Trinkley and Hacker (2007).

The Hospital

Initially called the Government Hospital for the Insane, St. Elizabeths was in operation by 1855, largely through the work of Dorothea Dix, a leading health reformer of the period. The hospital's mission was to provide, "the most humane care and enlightened curative treatment of the insane of the Army, Navy, and the District of Columbia (U.S. Code, Title 24, Section 161, Establishment).

Based on Dix's recommendation President Millard Fillmore appointed Charles H. Nichols, MD as the institution's first Superintendent in 1852. Nichols was also assigned the responsibility for selecting the property, as well as overseeing the design of the hospital (National Archives, RG 418, Letters Received and Other Records, 1851-1902). The first structure was Center Building, constructed in three phases: west wing, east wing, and the center administrative section.

Typical of the period, the Center Building was designed according to the principles of what was known as the Kirkbride Plan[1] by architect Thomas U. Walter, who is perhaps better known as the primary architect of the U.S. Capitol expansion, begun in 1851.

Another part of the Kirkbride Plan focused on the grounds, which were intended to be "highly improved and tastefully ornamented," thereby contributing to the curative properties. Thus the location, overlooking the Anacostia and Potomac rivers, providing a panoramic view of the city, was as important as the buildings themselves. The situation was described in the October 1860 Superintendent's Report (p. 20):

> A tract of one hundred and ninety-five acres of land, situated on the southeast bank of the Anacostia river. It is nearly due south from the United States Capitol, and about two miles from it in direct line. It is the most prominent part of what has been known ever since the settlement of the country as the St. Elizabeths tract . . . . it is perfectly healthy. The site of the hospital edifice commands a panoramic view of the entire

[1] This refers to a system of asylum design advocated by Philadelphia psychiatrist Thomas Story Kirkbride in the mid-nineteenth century. His requirements were based on the philosophy of "Moral Treatment" – a form of treatment popular at the time based on humane psychosocial care and moral discipline. The typical floor plan consisted of long, rambling wings staggered ("en echelon") so that each connected building would receive sunlight and fresh air. It was thought this design promoted privacy and comfort (Levin 2005). For more information see www.kirkbridebuildings.com.

> District, and of an equal extent of the country in Virginia . . . . When this tract of land came into the possession of the government, about one-half of it, or one hundred acres, were under cultivation. Since that time its productiveness has been increased at least fifty per cent., and about twenty acres have been reclaimed from the forest, and put under cultivation – about the same number that have been appropriated to the site of the buildings, and the grounds and yards for their immediate accommodation.

The Annual Report of the Board of Visitors for Fiscal Year Ending June 30, 1860 (p. 17) expands, noting:

> This tract has upon it many fine old forest trees, and several miles of winding carriage roads have already been laid out and roughly graded. Where the forest was too dense for a large and handsome growth, the surplus trees have already been carefully cut out, and used as firewood or sawed into lumber. Two of the handsomest wards in the hospital have just been finished and furnished, one with cedar and the other with chestnut which grew upon the premises.

Other construction activities during this period included the creation of a large wharf, gas-works, and an engine house. Even the bricks were fired on the grounds of the hospital (perhaps in the front of Center Building) in order to reduce the cost (Nichols complained that the appropriation was entirely too small for the planned hospital). [2]

The first patient was admitted on January 15, 1855; by mid-March 1855, 51 paupers from the District of Columbia, previously housed in Baltimore, were transferred (Overholser 1956:4). Meanwhile additional construction continued, with the erection of an ice house, extension of the stables, building of a green house, and the creation of two bowling alleys in the basement of the Center Building wings (Report of the Superintendent of Construction, October 1, 1861).

Almost immediately Nichols proposed the construction of a wall surrounding about 40 acres of the hospital, to have a foundation 20 inches wide, buried 24 inches deep. The 14-inch thick wall was to be 9 feet high and to be strengthened by "leaning pilasters on both sides." A coping of blue flagging was proposed. Some progress had been made by 1859, although the wall (eventually surrounding three sides of the 190 acre property) was not completed until 1869.

Initially this wall was to be brick and bluestone, but the bluestone quarry ceased operation prior to the completion of the wall, sending Nichols scurrying for alternative materials. He located a "deposit of coarse, silicious conglomerate" in the neighborhood. This was quarried by a "party of out-door attendants and patients, and hauled by the hospital teams" (Superintendent's Report, November 1, 1866, p. 18).

The hospital also stoned in two springs that provided drinking water for the facility.

[2] Only $100,000 was provided by the 1852 Civil and Diplomatic Appropriation Act for the purchase of the property, construction, furnishing, and making the hospital ready to receive patients. The St. Elizabeths property cost $27,000 alone.

Wash water, however, was piped directly from the river.

Between 1855 and 1859, 257 patients had been treated by the Government Hospital for the Insane. In October 1861, however, the United States Congress authorized temporary use of the unfinished east wing as a 250-bed general hospital for the sick and wounded soldiers of the Union Army. The West Lodge for African American insane males was converted into a 60-bed general and quarantine hospital for the sailors of the Potomac and Chesapeake fleets. By 1862, an artificial limb manufacturing shop (using a process patented by B.W. Jewett) was set up to fit amputees (located in the West Lodge Cafeteria). Patients from nearby hospitals were transferred to St. Elizabeths to be fit with prostheses and soldiers stayed until they learned to use their new limbs.

During the Civil War a portion of the hospital farm (intended not only for curative work, but also to provide essential supplies) was converted into a cavalry depot and an encampment for a marine company. Tents were placed on the grounds for convalescent patients due to overcrowding. What was known as "Pencote Battery" was constructed by Commander John A. Dahlgren on the grounds of the hospital, across the Anacostia River from the navy yard (Schneller 2004). A fortification was also constructed on the Shepard Farm (today known as the East Campus). Although the fate of Dahlgren's Pencote Battery is not known, there is a brief reference to the other fortification being leveled in 1875. Remains, however, are likely still clearly evident archaeologically.

It was during the use of the hospital by Civil War wounded that the name St. Elizabeths began. Soldiers were reluctant to write home announcing their confinement in the "Government Hospital for the Insane," so they began to refer to the hospital using the colonial plantation name (Board of Visitors Report, Fiscal Year Ending June 30, 1868, p. 10).

By 1864 a "handsome and convenient public road, bridge, and culverts" had been constructed across the Anacostia, linking the hospital with the District.

In 1866, Congress passed an act permitting the hospital to admit all men who had served as Union soldiers and were found insane within three years of discharge by reasons of continuation of mental illness, relapses after recovery, or mental illness relating to military service. It was found that many of these veterans were chronically ill, with their conditions requiring custodial care. Further enlarging the population at the hospital, Congress in 1882 directed that the insane at the National Home of Disabled Volunteer Soldiers be sent to St. Elizabeths.

Land east of Nichols Avenue was acquired by the Secretary of the Interior for the use of St. Elizabeths by 1869. In 1878 the Board of Visitors reported that the grounds had grown to nearly 400 acres. Figure 11 shows what would become the East Campus in 1878 as largely cultivated and pasture for the hospital's cattle, although the new East Campus Cemetery had already been developed.

Because of the severe overcrowding the hospital embarked on a significant building program, adding the Dawes wing (1871) and Garfield wing (1872) to Center Building. Also added were Atkins Hall (1878), Relief Building (1879) and Home Building (1883). This program did little to solve the problem. The Home Building, intended to house 150 patients, was soon occupied by 450.

The Civil War patients, by this time elderly, severely disabled, and in poor health, were eventually separated from the criminally insane with the construction of Howard Hall in 1887. Between 1898 and 1899, four Allison Buildings were constructed to care for the Civil War veterans.

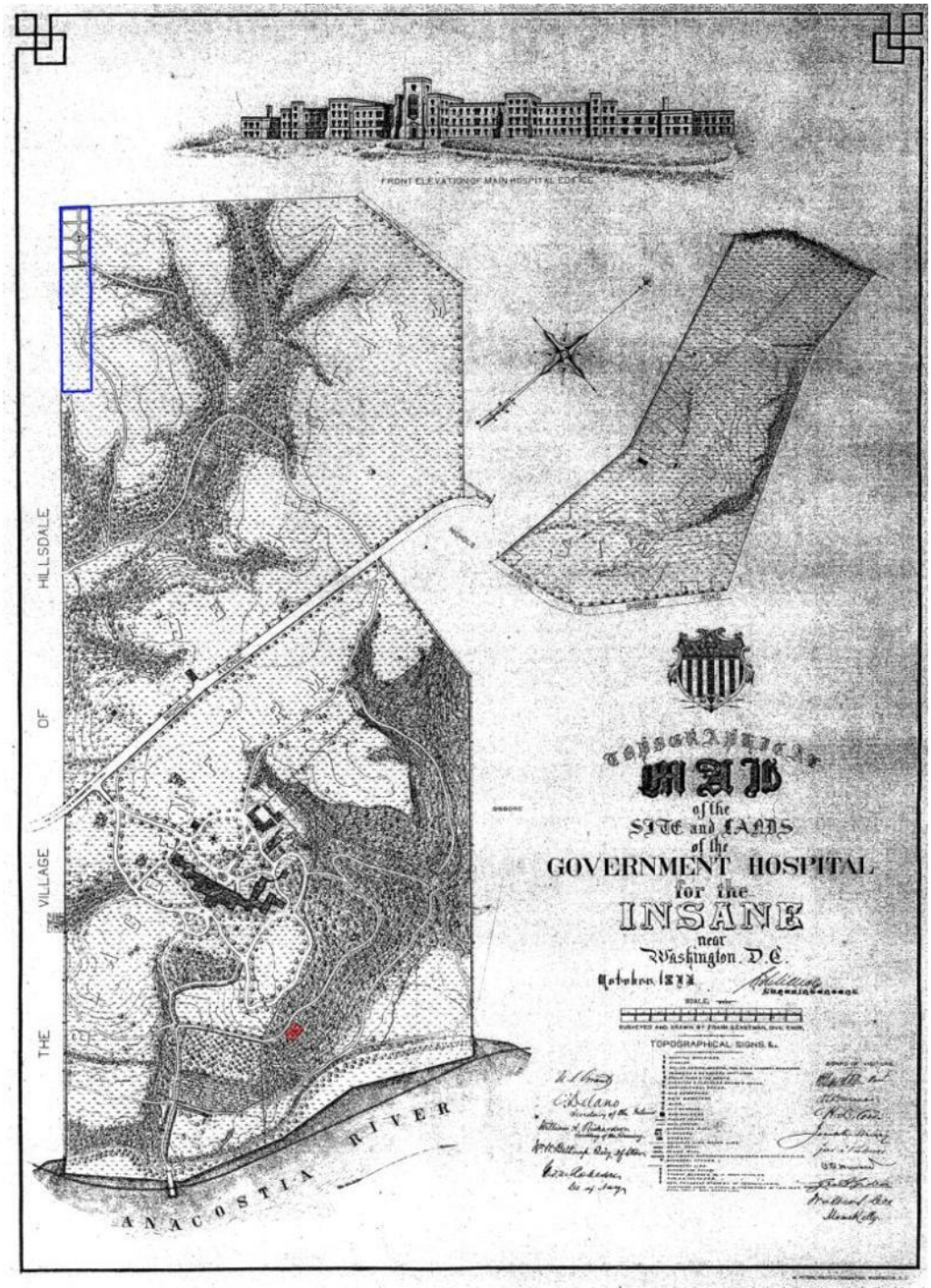

Figure 11. St. Elizabeths in 1873. The West Campus is at the bottom of the map and the first cemetery is shown in red. The East Campus is at the top, with the newer cemetery shown outlined in blue. At this time the East Campus was largely cultivated and was not yet built on (National Archives, Cartographic and Architectural Branch, RG 418, Item 12).

By 1876 the care of the hospital's patients was being questioned. Although Nichols was exonerated, he resigned the following year (House of Representatives Report 793, 44th Congress, 1st Session). The new superintendent was William W. Godding whose fiscal attitude toward patient care was perhaps best portrayed by the quote, "omit nothing essential to the proper care of the patient but . . . avoid unnecessary expenditures." He died suddenly in 1899 and was succeeded by Dr. Alonzo B. Richardson. Richardson himself died four years later and was replaced by Dr. William A. White.

By 1900 landscape architect Frederick Law Olmsted, Jr. was consulted on the proposed addition of the East Campus. He noted that at present the grounds were "much cluttered and confused in arrangement (Library of Congress, letter quoted in Maggioncalda 2004). A formal report in 1901 was blunt, noting that buildings "have been huddled about in the vicinity of the great main building [Center Building] with no regard for agreeable or even orderly appearance and what is far more important, without proper regard for the various uses to which the buildings are put and the interference of these uses with each other." The appearance was one of "confusion," the design called "bold and uncompromising." Olmsted recommended that some of the minor buildings be removed, and that pathways and plantings simplified. But most of all he warned that future buildings should take heed of the problems.

Olmsted warned that buildings near Nichols Avenue should be avoided: "the sight of patients at their windows, their sometimes unseemly conduct, and the noises which they often make, [would] be a serious annoyance to the public." He goes on to note that the land east of the avenue is too distant and barren, suggesting instead the purchase of additional land on the west side of the avenue (Library of Congress, letter reproduced in Maggioncalda 2004).

Although publications such as D'Amore (1976) paint a very complimentary picture of Dr. White, the hospital was investigated a second time in 1906 (*Report of the Special Committee on Investigation of the Government Hospital for the Insane with Hearings May 4 – December 13, 1906 and Digest of the Testimony*, House of Representatives, 59th Congress, 2nd Session). A third investigation took place only a few years later in 1911 when 40 people complained of the cruelty observed in the institution, with 26 of those lodging complaints being attendants. In spite of the vast acreage to supply fresh meat, milk, and produce, Dr. Isaac N. Kelly, who inspected the food provided patients, described it as "the worst I ever saw in my life," noting that "the beans were so hard you could hardly crush them with your teeth." After each investigation the hospital was warned and promises were made, but there seems to have been little overall improvement.

In 1916 the name of the institution was officially changed to St. Elizabeths and by the middle of the twentieth century there were 7,000 patients and 4,000 employees operating out of 100 buildings spread between what had become the east and west campuses.

Dr. White endured yet a third investigation in 1927. Again there was ample evidence of mistreatment, poor food, and mismanagement (McCarl 1927). By this time the West Campus was 190 acres and was separated from the East Campus by Nichols Avenue and its street car line. There was already a connecting tunnel under the street, the brick wall on the west side of the street, and an iron fence on the east.

In 1948 the last of the institution's cattle were sold off. This likely marks the end of efforts to supply the hospital using local produce and livestock. There was yet another investigation of conditions at the hospital in the mid-1960s.

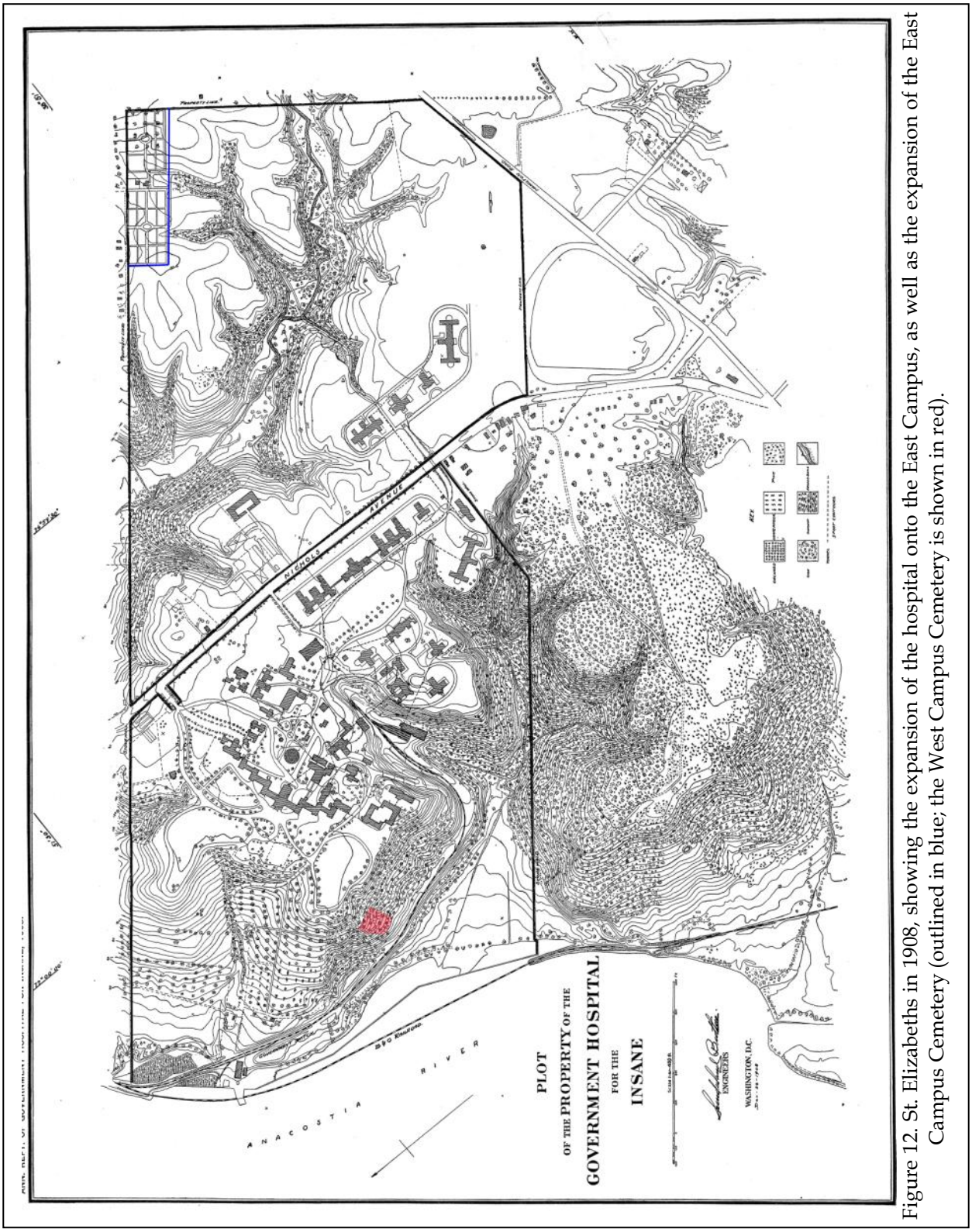

Figure 12. St. Elizabeths in 1908, showing the expansion of the hospital onto the East Campus, as well as the expansion of the East Campus Cemetery (outlined in blue; the West Campus Cemetery is shown in red).

In 1987 the federal government transferred St. Elizabeths' 118-acre East Campus to the District of Columbia. The West Campus remained federal property under the auspices of the Department of Health and Human Services (HHS), although the District was given permission to use the buildings on the West Campus in return for being responsible for the protection and maintenance of the entire site and grounds. The DC Department of Mental Health took charge of the site.

This arrangement, however, was far from amiable. The District alleged that the buildings were in substandard condition and the federal funds provided at the time of the transfer for renovation were insufficient. The District sued the federal government to recover additional funds and this case has yet to be decided.

When the property was transferred to the District, Congress required the city to develop a plan for the entire 356-acre site for submission to Congress. This was done several years later by the District, proposing continued institutional use for the entire site. They stipulated, however, that given the cost of bringing the buildings up to current standards, the District would accept the West Campus only if funds were provided along with the transfer. Congress took no action and in 2006 the District completed a proposal for more than 2 million square feet of office buildings, commercial development, and high-end apartments – essentially destroying the historic grounds and converting the property into a "ripe development opportunity" ("District Completed Plan for St. Elizabeths," *Washington Post*, November 6, 2006, pg. D3).

Meanwhile, in 1991 the U.S. Department of Interior responded to concerns of local preservationists and designated St. Elizabeths as a National Historic Landmark, the highest historic status available under federal law. The site had been previously listed on the National Register in 1979. [3]

In 2001 the Department of Health and Human Services notified the General Services Administration (GSA) that the Department no longer needed any of the 176 acres or 61 buildings on the West Campus, formally triggering the federal excess property disposition process (Garrison 2003; General Accounting Office 2001). In 2002 St. Elizabeths was placed on the National Trust's 11 Most Endangered Places list. The Trust has criticized "GSA's $900 million investment plan for the West Campus of the hospital without the benefit of a master plan, as required by Congress" and contends that the construction schedule proposed would not only require demolition of historic buildings, but also focuses on a "maximum build-out" plan rather than what the Trust considers to be a more appropriate preservation and campus planning approach (http://www.nationaltrust.org/11Most/list.asp?i=49).

St. Elizabeths, plagued by at least four previous investigations, was again investigated in 2005 by the Civil Rights Division pursuant to the Civil Rights of Institutionalized Persons Act. That investigation found that St. Elizabeths failed "to provide its patients adequate: 1) protection from harm; 2) psychiatric and psychological care and treatment; 3) medical and nursing care and treatment; and 4) discharge planning and placement in the most integrated setting" (May 23, 2006 letter from Wan J. Kim, Esq., Assistant Attorney General, U.S. Department of Justice, Civil Rights Division to The Honorable Anthony A. Williams, Mayor, District of Columbia).

[3] This process began in 1972 and focused on the Center building and what was called the "Civil War Cemetery" on the West Campus (letter from A.R. Stirni to J.E. Critz, dated May 9, 1973, in Maggioncalda 2004).

The West Campus Cemetery

We have previously provided a historical synopsis of the West Campus Cemetery (Trinkley and Hacker 2007), noting that the first burial was of Mrs. Sarah Fontain, a pauper at the hospital, who died on January 26, 1856. Nichols remarked that he was surveying a "small secluded plot of ground" for the hospital's cemetery. He also indicated that the burials at the cemetery would be "designated by a numbered head board, which number will be entered in the record of the case, so that the place of burial can be at any time identified" (National Archives, RG 418, Letters Received and Other Records, 1851-1902).

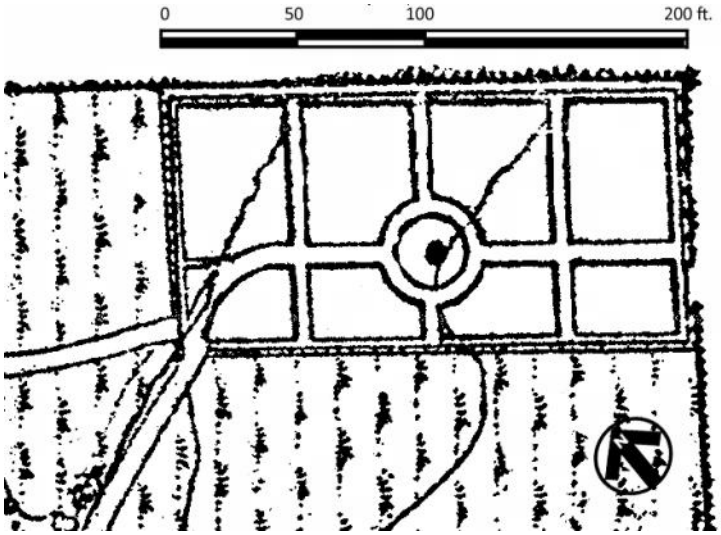

Figure 13. East Campus Cemetery in 1873, showing eight sections.

In retrospect we know that Nichols' promise to mark and record burials was hollow. Today it is impossible to know who is buried in the West Campus Cemetery, much less where their body lies.

Regardless, the cemetery was apparently filled by 1873 – creating the need for the "new cemetery" at the edge of the eastern campus. Sluby (2004:4-12) suggests that by 1873 there were about 600 graves in the western cemetery. Assuming again 48 square feet, this would require nearly 0.7 acre – very close to the 0.76 acre cemetery shown in the 1868 plat.

The East Campus Cemetery

The only published history of the East Campus Cemetery is Sluby (2004) and that work leaves unaddressed many questions. It does not, for example, provide any evidence of when the new cemetery was laid out, who developed the design, or why the particular area at the corner of the property was chosen.

The last burial at the West Campus Cemetery is reported as 1873, although Sluby (2004:8-4) reports that inexplicably at least two additional burials were made in the West Campus Cemetery: Private James Clary, who died May 20, 1874, and Samuel J. Farrar, a civilian buried about January 5, 1891. Insufficient research has been conducted to allow any speculation on why these burials were made in the West Campus Cemetery, if they were in fact made there.

While the earliest detailed drawing of the new, East Campus Cemetery dates to 1890, the 1873 plan of the hospital already shows the cemetery and its pathways laid out (Figures 11 and 13).

This 1873 plan reveals that the initial cemetery consisted of eight sections divided by defined roads and a central circle with a structure in the middle. The northern four sections were twice as large as the southern four and were used for military burials. This indicates that, at the time of the cemetery's development, the hospital anticipated far more military deaths than civilian.

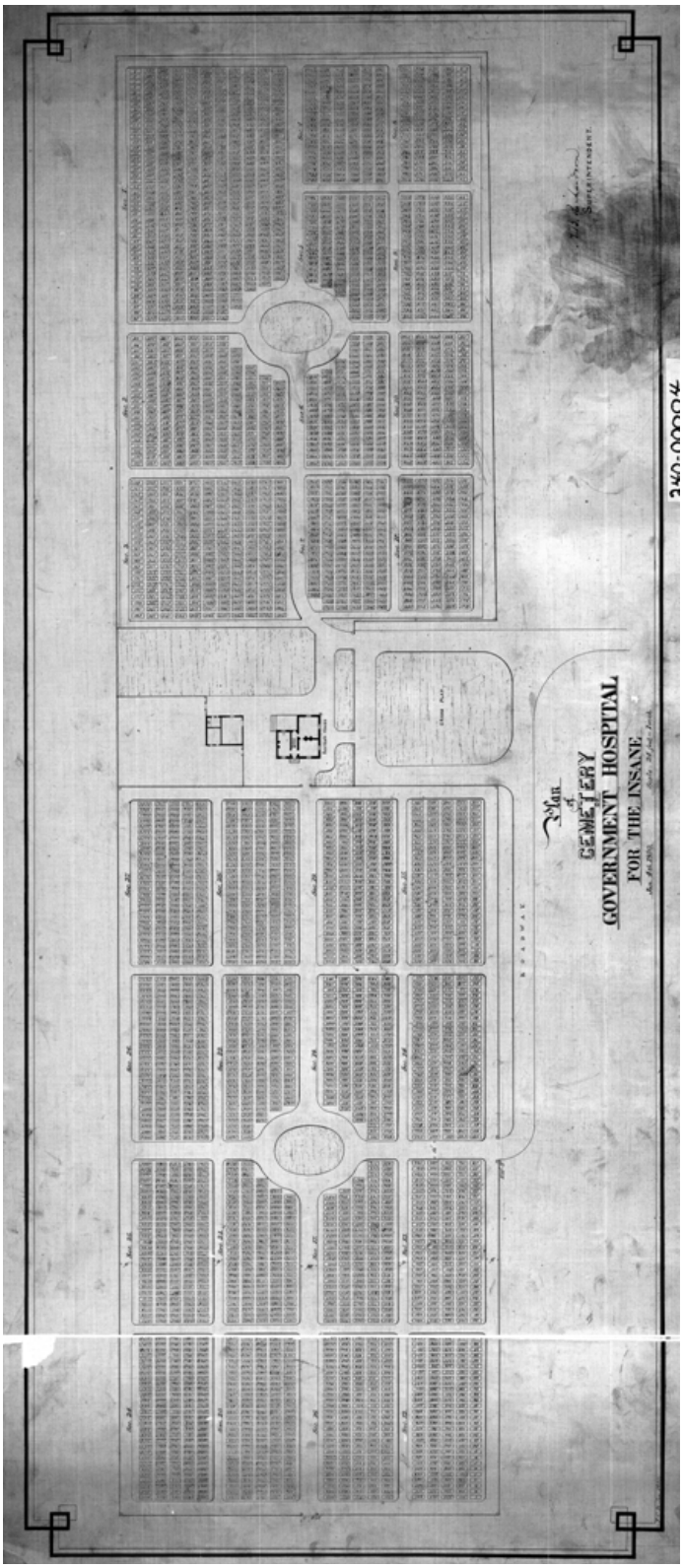

Figure 14. 1890 *Plan of Cemetery of Government Hospital for the Insane.*

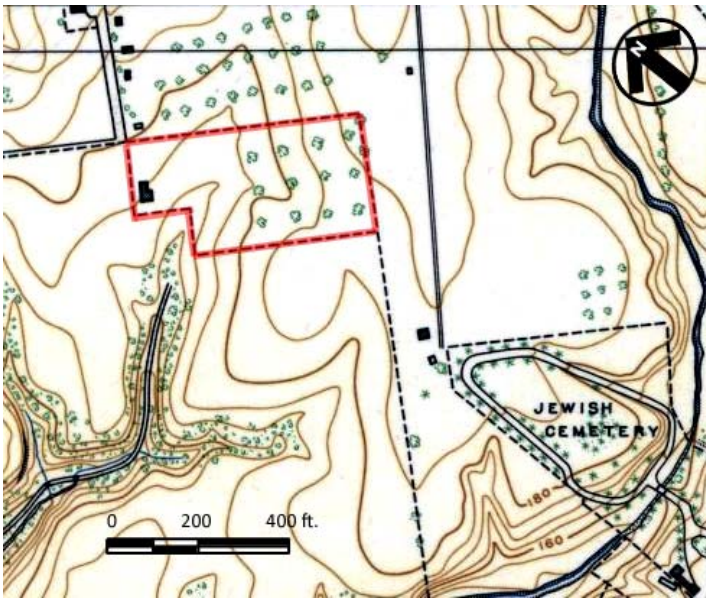

Figure 15. 1892 US Coast and Geodetic Survey *District of Columbia* topographic map, sheet 60 showing the St. Elizabeths East Campus Cemetery and sexton's cottage.

The plan is also useful for other landscape details it provides. The hospital grounds were surrounded by a picket fence, likely constructed by the St. Elizabeths carpentry shop and shown in a variety of period photographs. The cemetery, however, was marked by a brick wall on its western and southern sides, clearly defining the burial grounds and separating it from the remainder of the agricultural property surrounding it.

Two roads lead to the cemetery, each merging at the graveyard's southwestern corner and running diagonally through the section to join with the road running down the center of the property, separating the military and civilian burials. Graves within the plots were laid out north-south (or more precisely northeast-southwest). This suggests that the designers were more concerned with space allocation then with maintaining the east-west tradition associated with burials of the period.

By January 4, 1890 the hospital had produced a far more detailed plan of the cemetery (Figure 14). We believe, however, that the enlargement came in phases.

The 1892 District of Columbia topographic map shows the outline of the cemetery, revealing that the cemetery present in 1873 had been expanded to the south, adding an additional four sections. Two of these were used for additional military graves, while the remaining two were used for civilian graves. This suggests that within 20 years the original cemetery had already been filled, necessitating the first of several expansions. This work would have removed the brick wall, perhaps replacing it with the hospital's ubiquities picket fences. The map also shows that the cemetery had been planted with trees in a rectilinear grid fashion.

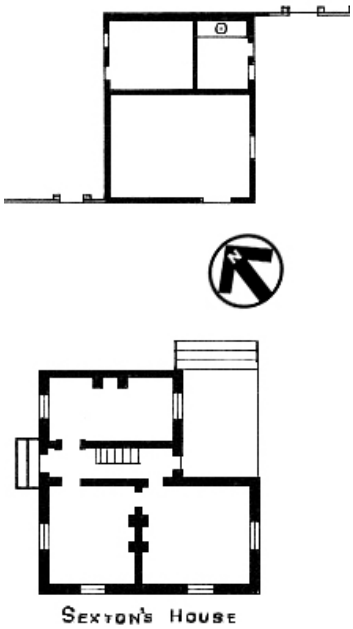

Figure 16. Plan drawing of the sexton's cottage and rear building, 1890.

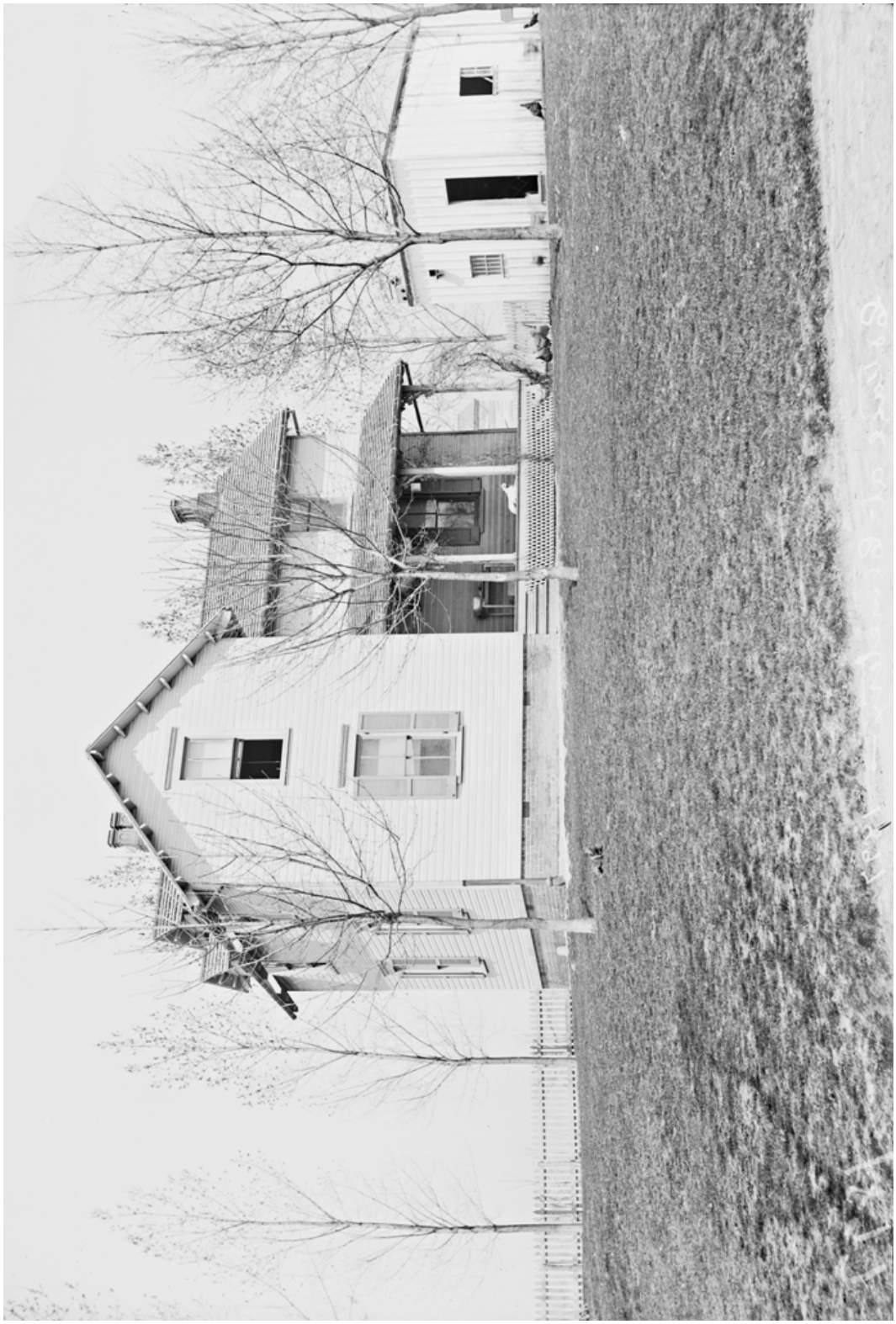

Figure 17. *Cottage at Cemetery, 1897*. View is taken looking to the north (NARA 418-G-82).

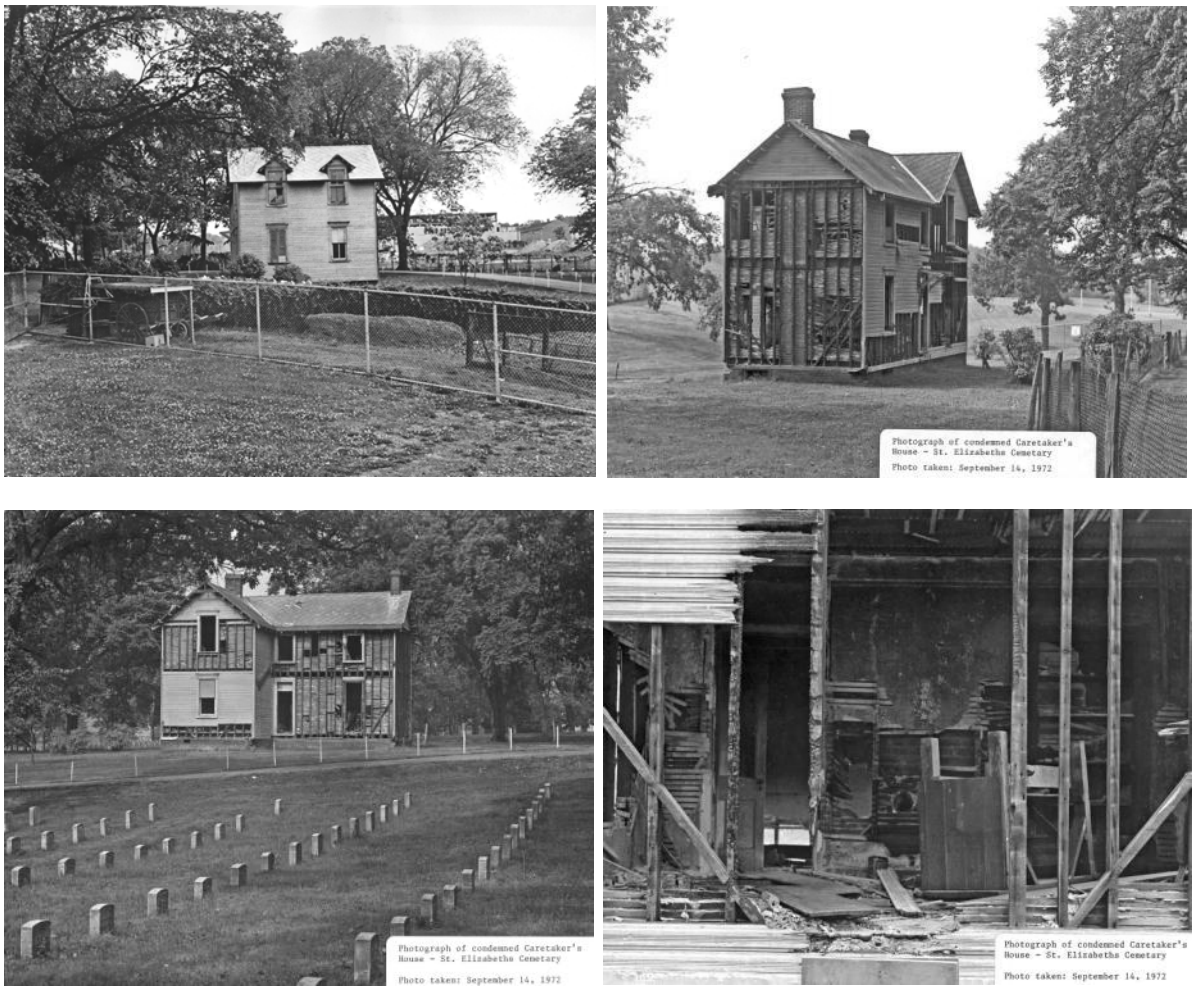

Figure 18. The sexton's cottage in the twentieth century. Upper left shows the cottage ca. 1969 looking to the northeast. Note that the roof is now metal and the chimneys have been reworked. Otherwise the house, while vacant, appears in good condition and the yard appears to still be maintained. The utility building, if still present, is hidden. In the background is Johnson Middle School under construction. Upper right photo shows the house in 1972 looking to the south. Note balloon framing and extensive salvage of siding. Lower left photo shows the house in 1972 looking to the northwest. The porch is gone and considerable cladding has been removed. Lower right photo shows a close-up of fire damage and extensive interior gutting. Note the built-in stud bracing (upper left, NARA; others, Blackburn Laboratory, courtesy of Suryabala Kanhouwa).

Thus, the 1890 plan was probably just that – a plan of proposed additions. What was already in place is more likely shown by the 1892 map.

By at least 1892 and perhaps by 1890, the hospital had constructed a cottage for a cemetery sexton (Figure 16). This house was illustrated in an 1897 photograph (Figure 17) that provides important details concerning its construction and the surrounding cemetery. Additional photos of this cottage were taken in ca. 1969 and in 1972 (Figure 18).

Figure 19. East Campus Cemetery in 1897, view to the west-northwest (NARA 418-G-81).

These photos provide a wealth of architectural details concerning the sexton's house. One interesting aspect is the detailing that was present on the structure. The foundation was common bond with sixth course headers and decorative iron vents. The cladding is a beaded ship lath. There are decorative braces under the gable. The 2/2 windows exhibit cornice detailing. The porch reveals lace-like brackets. The two interior chimneys each have double clay chimney pots. Although the structure appears utilitarian, there are enough Victorian details to suggest that the structure was intended to add dignity to the cemetery. Its loss is much regretted.

Further details are provided by the plan drawings of the structure at the National Archives. A particularly significant detail is that the structure included a cellar, located under the kitchen and hallway, measuring about 18 by 20 feet. This cellar may contain very significant archaeological deposits.

Although Sluby (2004:4-31) suggests that the structure was never used by the sexton, this is clearly incorrect. The photographs show a structure that is occupied in the late nineteenth century. While Sluby was unable to find payroll records, we have identified the sexton in the 1900 through 1930 census records.

In 1900 the sexton, identified as "in charge of cemetery" was John Boyle. He was a 60 year old Irishman, married to Catherine, 51, from England. They had two children, and 18 year old son, Francis, and a 15 year old daughter, Theresa. In the 1880 census Boyle and his wife were living on F Street, NE in the city and his occupation was listed as laborer. In 1910 he was identified as the Cemetery Superintendent and his household consisted only of his wife and daughter. St. Elizabeths had a new caregiver by 1920, when the census identifies the 38 year old Maryland resident, William Carter, as the sexton. The 1930 census identifies him as William Cator.

Sluby (2004:4-31, 4-32) also contends that the structure was moved to its West Campus location from the East Campus. The validity of this comment is impossible to assess since no citation is offered in support. The structure appears in pristine condition in the 1897 photographs, but clearly additional research is necessary to resolve this issue.

Returning to the 1890 cemetery plan, the document provides a range of valuable information. Dimensions on the plan show the cemetery measured 264 feet in width (north-south). The addition to the west measured 1,032 feet 6 inches in length. In this new section the central east-west road was 12 feet in width, as was the central north-south road that formed the circle. The other dividing roads were 6 feet in width, with the exterior boundary roads being 9 feet in width. We believe that the eastern section was essentially the same.

By 1890 the designers had also devised a rather complex numbering scheme. The eastern half of the cemetery (or oldest portion) was divided into 11 sections, numbered from the northeast to the southwest with the numbering of each row beginning at the eastern edge and running west.

Within these sections the numbering was no less complex. Odd numbers are found in Sections 1-3, with 1 beginning in the northeast corner of Section 1 and the numbers running from the east to the west, then returning to the east side for the next row of numbered graves. Even numbers are found in Sections 4-11, with 2 beginning in the southeast corner of Section 8 and the numbers again running from the east to the west, then returning to the east side for the next row. Thus, odd numbers progress from north to south, while even numbers progress from south to north.

In the addition, to the west of the sexton's house the section numbers begin in the southwest corner at 12 and run east to 15. Section 16 is then found just north of Section 12 and the second row runs from 12 to 15. The third and fourth rows are the same, including Sections 20-27. The numbering within the sections begins again with 1, although here the numbering is sequential from the southwest corner eastward up to 117. Grave number 118 is immediately north of grave 1 and so forth.

Thus, identification requires both a section and grave number in order to locate a burial.

Another clue to the appearance of the cemetery at the end of the nineteenth century is provided by a photograph shown as Figure 19. This is of particular importance to us since it reveals a cemetery that is well maintained. The grass, while rough, is trimmed. We see a variety of relatively young cedars, as well as both newly planted and established deciduous trees – much more landscaping than is present today. In the background we see the picket fences that were used extensively at St. Elizabeths. The property boundary fence, at the far right of the photograph, appears to be a board fence about 5 feet in height, although it may be picket.

We also are given a hint that, even at this early date, the order in the cemetery may be deceptive. For example, we see a mix of both thinner stones, representing older monuments, and the newer, standardized government stones. While this is to be expected, we see one new stone among older stones. Is this a replacement for a damaged stone? Or does it indicate that stones were simply being set with no particular association with the individual buried? This was certainly a practice revealed by our study of the West Campus Cemetery (Trinkley and Hacker 2007).

We note also that the stone numbers, while in sequence, do not correspond to the placement indicated by the map of the cemetery (see Figure 14). For example, we see 179, 181, 183, 185 and behind them in the next row, 357, 359, 361, and 363. The association between these two rows, however, is wrong. Stones 179, 181,

and 183 are at the end of the section – not in the middle as shown in the photograph. The 357-363 stones are likewise at the end of the section, not in the middle.

We are left with stones that appear to be placed in numerical order, although that order does not conform to the expected placement as shown by the 1890 cemetery plan.

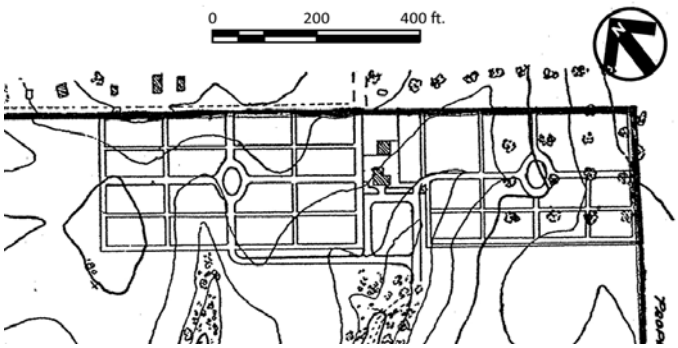

Figure 20. Close-up of the 1908 *Plot of the Property of the Government Hospital for the Insane* showing the East Campus Cemetery.

It is also useful to look at the distance from the first row northeast to the boundary fence. It appears to be at least 20 feet. Today, however, the distance from the first row of stones to the boundary fence is mere feet, raising the question of whether the stones have been moved or if the boundary of St. Elizabeths has shrunk.

The photograph also reveals an iron Confederate cross – identical to those used in the West Campus Cemetery and identified by our investigations at that cemetery (Trinkley and Hacker 2007). While there is one Confederate dead intermingled with the Union dead, in the distance, at the south edge of the cemetery, adjacent to the road, we see at least five Confederate crosses, suggesting that the policy at some point was changed and the Confederate dead were buried in a location distinct from the Union troops.

We also see in the background a variety of plain sticks. Do these mark graves awaiting burials or burials awaiting stones?

Finally, beyond the sexton's cottage, in the vicinity of what would be Section 15, we see government stones – indicating that at least this section had been prepared and opened for burial by 1897.

In 1906 Dr. William White, then Superintendent, testified during a Congressional hearing that no account of the cost of burials was maintained. He explained that some "old soldiers" were buried in Arlington, "if there are sufficient funds," while the others were buried in the hospital's burying ground and "the quartermaster's department of the army furnishes a headstone" (Anonymous 1907:923).

With specific reference to the new cemetery on the East Campus, Dr. Hay testified that both military and civilian burials were made in "a very plain pine box" that he believed was stained and varnished (Anonymous 1907:1191, 1197-1198). By this time, however, at least the military burials received a service – "the Episcopal service over the dead" read by a staff member (Anonymous 1907:1198).

The next plan we have is the 1908 *Plot of the Property of the Government Hospital for the Insane* (Figure 20). This shows the cemetery as it appears on the 1890 plan. We know, based on the 1897 photograph (Figure 19) that the new western section had been prepared and opened for burials, so it is likely that this drawing doesn't simply indicate a planned burial ground, it shows what was actually present.

The contours also reveal that the cemetery had to contend with several areas that were in depressions, representing the heads of gullies. In particular Sections 7 and 11 may have posed some drainage problems for the burial details, especially in the winter. Likewise, a

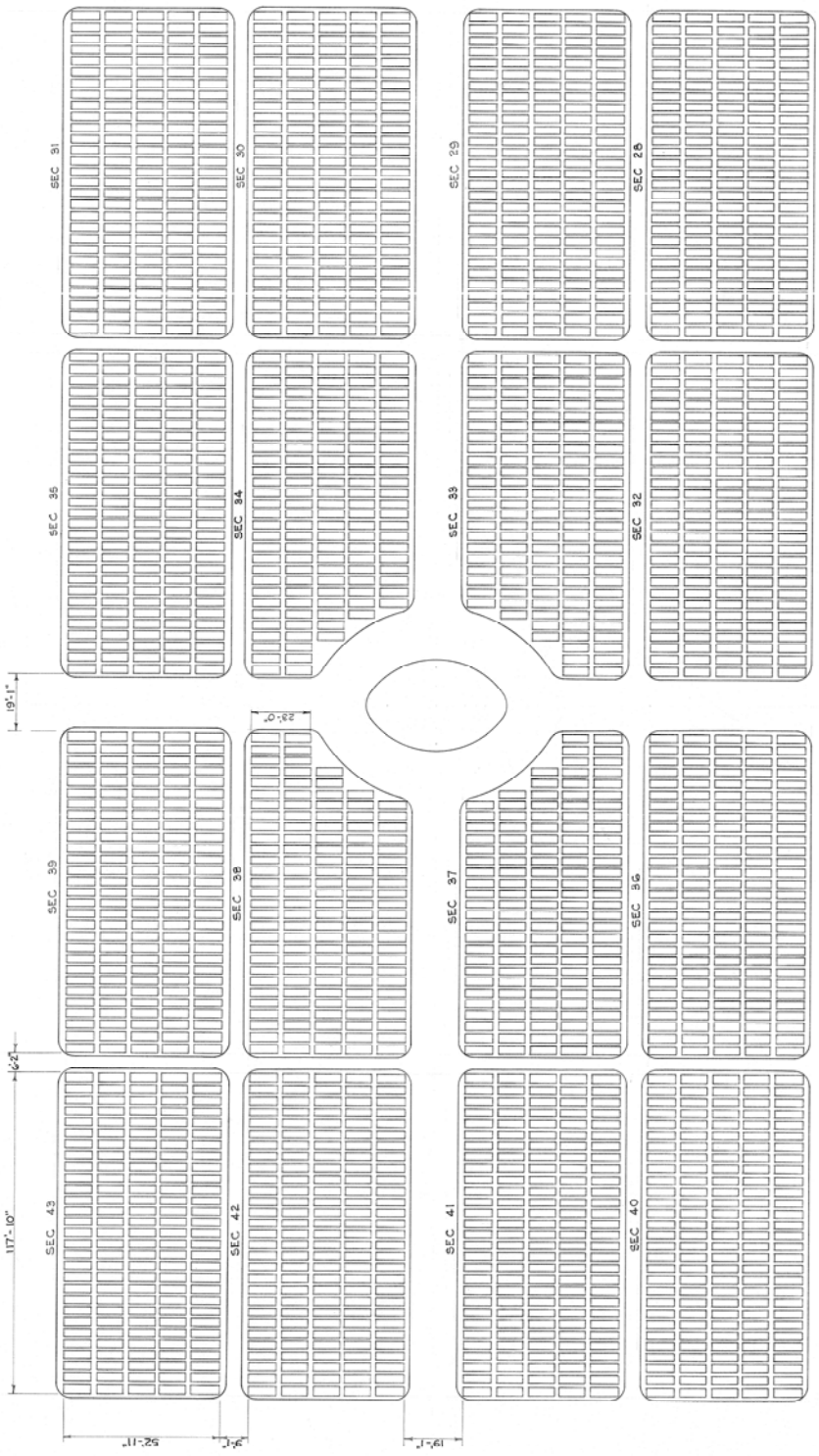

Figure 21. Last extension of the East Campus Cemetery.

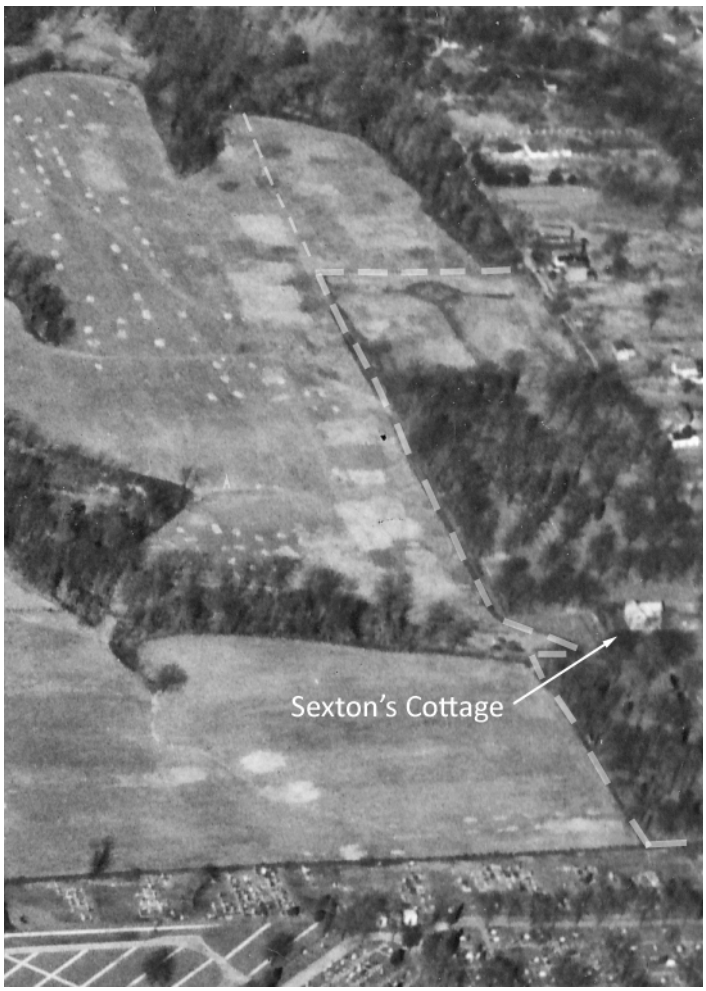

Figure 22. 1937 aerial of the East Campus Cemetery.

small gully is shown for Section 13. The topography may also explain why the area in front of the sexton's cottage was laid aside as "Grass Plat" (not, as erroneously reported in Sulby 2002:4-30, "Play Grass.").

The next Congressional investigation provided additional details, with the synopsis noting that,

> There are three cemeteries in different parts of the hospital grounds where patients are buried when their families do not request burial elsewhere. Two of these are located in the southeastern corner of the reservation and are separated by a road leading from the hospital grounds [East Campus Cemetery]. The other, which is filled and not used, is located near the railroad tract in the vicinity of the pumping station [West Campus Cemetery].
>
> A cemetery sexton, which is commissioned a special officer on the Metropolitan police force, lives near the cemetery grounds and acts as a watchman. He superintends the burial of all bodies and keeps complete records of same. Necessary laborers are detailed to the cemetery to assist in the work . . . .
>
> There are approximately 4,000 bodies buried in the three cemeteries, of which approximately 2,000 are military. The graves of former soldiers, sailors, and marines are marked with a marble stone furnished by the War and Navy Departments. Other graves are not marked, but a complete record of each grave is kept in the office by means of maps and diagrams which show the number of each grave, location, and the name of the person buried therein (McCarl 1927:113-114).

This last reference to maps and numbered graves applies only to the East Campus Cemetery. No historic map has been found that illustrates any of the graves in the West Campus Cemetery and there is apparently no log of burials. Going back to Nichols' early commentary on burial practices, it appears that the only record was in the patient's file. This

synopsis, however, confirms that civilian burials were in no way marked by the hospital.

We also learn from the document that while soldiers, by this time, were being buried in metal coffins, others (presumably civilians) were "provid[ed] burial in a pine box" (McCarl 1927:27). The budget analysis also reveals that the hospital was being provided small refunds on the cost of coffins: in 1922, $9.62; in 1923, $18.81; in 1924, $3.38; and in 1926, $2.75. The costs are modest and it is unclear if these were for the pine boxes.

Figure 23. 1980 aerial photograph showing the western portion of the East Campus Cemetery.

The cemetery shown in the 1890 drawing and 1908 map was close to being filled by the 1930s and presumably additional planning began for yet another addition. Sluby (2004:4-29) identifies a plan with numbered graves which he dates to 1945 – well after the cemetery had begun. We have not identified this plan, although we do have a more recent version, identified as *Extension to Cemetery*, drawn by J.P. Chirieleison and dated October 1, 1965 (Figure 21).

The plan is nearly identical to that already in existence, although the roadways and walkways are different dimensions. The main north-south and east-west roads meeting to form the central circle are 19 feet 1 inch. Other north-south walkways between sections are 6 feet 2 inches, while the east-west walkways are 9 feet 1 inch. Each section measured 117 feet 10 inches east-west and 52 feet 11 inches north-south.

Sections were numbered 28 through 43, with Section 28 found in the southeast corner. Numbering ran south to north and west to east.

For reasons that are entirely unclear, numbering once again began with 1, with the letter A used as a suffix. Section 28 therefore included graves 1A through 145A, with the numbers beginning in the southeast corner and running east to west and south to north. Rows within each section were numbered from south to north (1-5).

The first aerial view of the cemetery we have identified is an oblique view dated 1937 (Figure 22). It shows the eastern two sections with mature trees providing far more coverage than is found today. The sexton's cottage is clearly seen and some of the military stones in section 18 are visible among the trees. The final extension is shown completely open, with the central circle and the east-west road defined up to the circle. The portion laid out appears to include sections 28-35, although the only two sections used by this time would have been sections 28 and 29.

Figure 24. Changes at the East Campus Cemetery between 1988 and 2008. Upper left shows the cemetery in 1988. Upper right shows the area in 2002. Lower left shows encroaching vegetation in 2005. The lower right photo shows the condition and thick underbrush by 2008.

Between 1937 and the early 1980s we have very little information concerning the cemetery. A 1980 oblique aerial (Figure 23) shows only the middle and western-most sections of the cemetery. It appears that trees are already becoming thinned out in sections 20-27, although the east-west road has been planted into the western extension. The central road west of the circle does not appear to have ever been developed and the road to the north of the circle is only poorly established. It appears by the mid- to late-twentieth century the idealized plan for the cemetery was not fully realized. The field northwest of the cemetery, clearly shown in the 1937 aerial is in woods by 1980.

Three photographs are available from 1982; each focusing primarily on various military sections of the cemetery. As late as 1982, at least based on these images, maintenance was still relatively careful and there appears to be little obvious damage to the cemetery.

A brief note indicates that in October 1968 there were at least three markers that may no longer be present. These include two markers "with the inscriptions in German – one was dated 1918" and a marker for "Baby Joe" who was three years old at burial (Sluby 2002:4-25).

Figure 24 shows a series of four aerial photos that allow the condition of the cemetery to be traced through time. The images reveal that while the landscape trees gradually decline in number, thick underbrush begins to overwhelm the western portions of the cemetery beginning by 2005.

The last burial in the cemetery occurred in 1983. After 1983 it appears that bodies not claimed by family members are turned over to the District of Columbia. The website for the district's Chief Medical Examiner notes that unclaimed bodies are retained for 30 days before "disposition." It is unclear why the hospital chose to stop using the cemetery – this is another area deserving of additional research.

We are fortunate to have been able to interview an individual with firsthand knowledge of burial practices in the 1970s and early 1980s. While not a member of the grounds crew that formed the burial detail, he was present for the maintenance of equipment. The individual reports that the coffins were plain wood boxes. There were no markings on the boxes, leading the burial parties to be uncertain of the top or bottom, much less the head or foot. There were also times, with multiple coffins, that the crew was uncertain who was in a particular coffin – suggesting that the accuracy of the burial ledger may be suspect.

There were no burial services and no chaplain was present. The burials were conducted without ceremony. The equipment used to excavate the graves was old and often had difficulty in the heavy, rocky soil. As a result many graves were undersized, resulting in coffins being placed in the grave at an angle. In fact, the informant recalls more than one occasion when the burial party was jumping up and down on the high end of the coffin, forcing it deeper into the hole. Many burials were, as a result, relatively shallow.

The lack of respect and basic human dignity observed conflicts with Sluby's (2002:4-37) claim that burials were "respectfully conducted."

The Burial Ledger

It may be that a burial ledger for the East Campus Cemetery was maintained from its inception, but the earliest identified record dates from 1914. Although St. Elizabeths today has a photocopy, Sluby (2008:3) reports that the original ledger was "salvaged several years ago from materials being destroyed during renovation activity at the hospital" and is today held by Michael G. Rhode. Mr. Rhode is apparently the Chief Archivist at the National Museum of Health and Medicine at Walter Reed, but the item is not in the museum's collection, but rather his personal collection. Sluby reports that a copy is available at the Washingtonia Room at the District of Columbia Public Library, although we could not identify it in the institution's on-line catalog.

Figure 25 uses data from Chicora's field inspection, as well as the burial ledger to graphically illustrate how the different sections were used over time, as well as the number of burials in each of the sections and the date range for each section.

A variety of factors were taken into account by those using the cemetery. Certainly one factor had to do with the inherent limitations of the soils and drainage. It is likely that there were some sections that were not favorable for burial during certain seasons – necessitating the use of out of sequence areas. Another factor is the design of the cemetery and the immediate needs. For example, the addition of sections 8-11 was the result of the initial design so quickly running out of space.

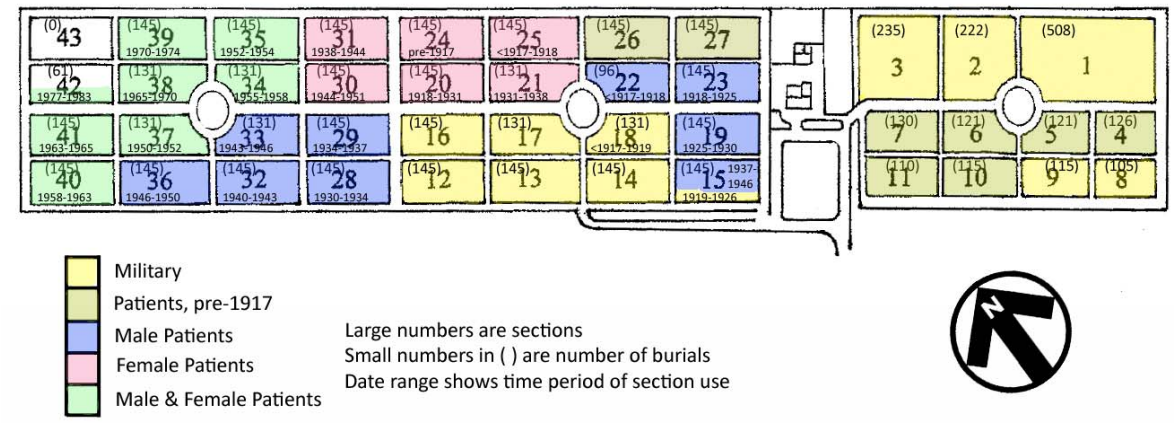

Figure 25. Number, type of burials, and date range of use for sections in the East Campus Cemetery.

The burial ledger provides a variety of information, although there is little internal consistency. Between 1914 and 1930 (pp. 1-47) the ledger includes the name, patient number, death date, interred date, grave, section, and row. In 1930 we see the first change, with the data running across two pages (pp. 49-51) and providing name, male (white or colored), female (white or colored), date of death, date of burial, number of section, row, and grave. In 1931 the organization again changes. In 1931 and 1932 (pp. 53-57) the information included date of death, name, hospital case number, male (white or colored), female (white or colored), total burials, age, cause of death, date of burial, section, row and grave, and burial permit number.

In 1933 (pp. 59-175) the information format again changes. Although the same information is collected and presented, the order is changed.

In 1938 a column is added for the number of relatives and individuals present at the burial (p. 85), but this information is provided for only that one year. By 1959 (p. 177) the cause of death column, while still present, is rarely completed. By 1963 the column is still present, but the individuals keeping the ledger no longer put the title at the top and no information is recorded. The cause of death column is completely removed in 1970 (p. 203).

It is also important to point out that the burial ledger is not in strict chronological order. For example, burials alternate between July-December 1917 and January 1918, then burials are entered for July-October 1917, then January 1917, and then November-December 1917. It appears that the individual entering the information may have been transcribing the data off some form or other slips of paper that were not always provided in chronological order.

The document is also missing 10 pages (pp. 43, 45, 47, 51, 75, 93, 99, 101, 147, 149), although there are no missing burials. It appears that the journal pages were simply misnumbered.

Careful analysis of the ledger also reveals that there are nine unused graves. Five of these are identified as not used because of a tree (21-4-1491, August 1933; 15-2-219, December 1940; 3-1-1892, July 1947; 3-1-1896, September 1949; 3-1-1897, September 1949). One grave was skipped in the listings (41-4-1939), and therefore is not on the map.

Table 2.
Native Americans Buried in the East Campus Cemetery

Ledger Page	Name	Date of Burial	Grave
63	?, Charlie	3/30/1934	28-5-126A
141	Amer (Armond), Adoe	2/14/1950	37-1-1282A
83	Bear, Frank	1/20/1938	15-3-321
111	Benally, Priscilla	12/15/1942	31-2-476A
83	Canoe, Kate	5/10/1938	21-5-1184
139	Creeping, Charles	10/26/1949	36-5-1269A
71	Ensign, Meda	10/17/1935	21-4-1270
67	Fair Banks, Richard	3/15/1935	29-1-146A
79	Fair Fox, Florence	6/2/1937	21-5-1171
85	Jackson, Robert	1/6/1939	15-4-448
79	Kalomuhesku, Edith	1/12/1937	21-5-1165
65	LaComte, Charles	2/7/1935	29-1-150A
145	McCarter, Watt	2/6/1951	37-2-1320A
175	Miletech, Rado	1/3/1959	40-1-1694A
115	Nesba	9/2/1943	31-1-459A
85	Rising Fire, Bessie	7/5/1938	31-5-379A
73	Short Woman, Sarah	2/26/1936	21-4-1279
95	Strikes on Gap	6/26/1940	32-1-589A
65	Tsinnijinnie, Mabel	10/10/1934	21-3-1372
71	Vigil, Fidel	7/11/1935	29-2-185A
123	White, Samuel	11/9/1945	33-5-840A
73	Yazzie, Hosper or Hospu	3/16/1936	29-3-222A

The ledger gives no explanation why the remaining three graves (20-2-1472, 19-3-917, and 33-2-754A) were not used, although the presence of trees seems the most likely explanation.

Sluby (2002:4-35, 2008:4) comments on the fact that the burial ledger identified the burials of a number of Native Americans, typically identified as "Indian." What is not discussed is that many of these native people at St. Elizabeths came from the infamous Hiawatha Insane Asylum in Canton, South Dakota. The institution was begun in 1900 and was staffed by individuals with little or no training in psychiatry. Many of the Native Americans at this institution were there only because they were traditional spiritual people or because they were disliked by the local Indian Agents. The Canton facility warehoused these individuals, many of whom were clearly not mentally ill, under the most inhumane conditions imaginable. There is also a cemetery at Hiawatha with 121 burials. As at St. Elizabeths, none of the graves were ever marked.

The Hiawatha facility was closed in December 1933. Some of the patients were sent home, others were sent to St. Elizabeths (http://sdgenweb.com/lincoln/hiawatha.htm; see also Yellow Bird 2002). At least 10 of the Native Americans identified in the St. Elizabeths East Campus Cemetery were originally from Hiawatha based on research by Ms. Frances McMillen (personal communication 2009).

Although Sluby (2008:4) lists 19 Indians, six of these are listed incorrectly and an additional four are entirely omitted. Table 2 provides a corrected list of the Native American burials. To this list McMillen has been able to add at least 11 additional names: Madeline Dauphinais, Kitty Spicer, Rose Wash or Washa, Yazza Sonna, Gondosayquay, Ollie Yarlott, Peter Picotte, Joanna Augusta, Joe McEwin,

Table 3.
Other Ethnicities Buried in the East Campus Cemetery

Ledger Page	Name	Date of Burial	Grave	Ethnicity	Other
109	Abertina, Peter	8/26/1942	31-2-484A	Virgin Is.	
207	Chinn, Henry	3/30/1973	39-3-1601A	Chinese	
205	Chong, Chien C.	3/8/1971	39-1-1566A	Chinese	
131	Daniel, Antoinette	9/9/1947	30-4-388A	Virgin Is.	
125	Gordon, Mary	1/16/1946	30-5-410A	Virgin Is.	
115	Hanson, Holbert	12/3/1943	33-2-763A	Virgin Is.	
39	Imori, Katsujils	8/15/1929	19-5-1119	Japanese	
95	Lin, Yick	8/2/1940	32-1-582A	Chinese	disinterred 8/15/1940
111	Long, May Sun	3/8/1943	32-5-697A	Chinese	
79	Mun, Tue	2/23/1937	29-4-241A	Chinese	
133	Peterson, Rosalia	4/23/1948	30-3-377A	Virgin Is.	
125	Sing, Lee	4/30/1946	36-1-1138A	Chinese	
151	Stapleton, Inger	10/19/1951	30-1-296A	Virgin Is.	
137	Tong, Yee	5/25/1949	36-4-1246A	Chinese	
37	Wah, Sang or Sam	5/6/1929	19-5-1107	Chinese	
151	Williams, Roy	7/20/1951	37-3-1338A	Virgin Is.	
103	Wilson, Carcia C.	9/15/1941	31-3-51A	Canal Zone	
27	Wo, Wong	2/19/1926	19-1-673	Chinese	

Table 4.
Prisoners Buried in the East Campus Cemetery

Ledger Page	Name	Date of Burial	Grave	Other
55	Anderson, Sam	8/1/1932	28-3-79A	U.S. Prisoner
63	Andrewshak, John	4/9/1934	28-5-122A	DC Prisoner
105	Barnes, Charlie	12/17/1941	32-3-645A	DC Prisoner
65	Burgess, John	2/7/1935	21-1-149	U.S. Prisoner
91	Clark, William	2/13/1940	15-2-217	General Army Prisoner
115	Dillo, Christos	9/16/1943	33-1-751A	DC Prisoner
61	Heids, August S.	8/7/1933	28-4-92A	US Army Prisoner
167	Ivry, Luis	11/2/1955	3-1-1896	US Army Prisoner
57	Kelty, William E.	12/20/1932	28-3-64A	U.S. Prisoner
57	Mannim, Joe	8/20/1932	28-3-77A	U.S. Prisoner
79	Marriott, J.A.	3/30/1937	29-4-237A	U.S. Prisoner
61	Matchett, William H.	10/18/1933	28-5-145A	DC Prisoner
85	Menzer, Bert	9/11/1938	15-2-214	General Army Prisoner
17	Messett, Patrick	9/9/1920	23-2-1562	US P[risoner]
115	Murton, Frank L.	11/17/1943	15-2-222	Army Military Prisoner
115	Newman, B.	10/19/1943	33-2-755A	U.S. Prisoner
123	O'Connell, John	10/11/1945	15-2-227	Military Prisoner
125	Rhodes, Elzii	2/8/1946	15-2-228	Army Prisoner
59	Rigo, Tony	7/6/1933	28-4-98A	US Army Prisoner
145	Rook, Peter	12/13/1950	37-2-1313A	DC Prisoner
109	Stempen, John	11/11/1942	32-5-718A	U.S. Prisoner
41	Wells, Andrew	9/16/1930	28-1-7A	Col. DC [Prisoner]
133	Wheeler, William	4/2/1948	36-3-1211A	Interred Alien

Mary Westerman, and Oscar Hope.

In addition to the Native Americans, the burial ledger also lists one Japanese, nine Chinese, one individual from the Canal Zone, and seven patients from the Virgin Islands. These are shown in Table 3.

The ledger also documents various prisoners held by St. Elizabeths who died and were buried in the East Campus Cemetery. We again found considerable variation between the ledger and the list provided by Sluby (2008:4). The ledger identifies 25 prisoners. Sluby lists 20, although eight are listed incorrectly and one listed by Sluby has no notation indicating his status as a prisoner and another individual listed in his table is not listed in his transcription. Table 4 provides a corrected listing of the prisoners.

While it is useful to have a published account of the East Campus burial ledger, this brief review suggests that there may be significant inaccuracies in the transcription. Consequently, we recommend that researchers continue to use the readily available photocopied original document.

Summary

This review of the East Campus Cemetery, cobbled together using readily available secondary sources and a very small number of primary documents and maps, provides an incomplete account of the cemetery and its history. In fact, this review is primarily useful as a tool for determining additional research topics.

For example, although we believe the cemetery began about 1873, we have little information concerning that process: how the site was selected, who devised the design, or what the intent was in designating particular sections.

We know little concerning the sexton: when was the position established, who held the job, and what were their responsibilities? Nor do we know why the position was dropped or how this affected the maintenance of records or burials taking place.

We have no complete account of the stones requested by St. Elizabeths for the military burials – which might assist in better interpreting what is seen on the ground.

As near as we can determine, no one has searched the patient records for any details concerning burials in the East Campus Cemetery. There is certainly very little effort to explore any of the groups that were buried in the cemetery, such as the Native Americans transferred from the Hiawatha facility.

There remain a host of potentially valuable records at the National Archives (RG418) that appear to have received only cursory examination (although we are not familiar with the most recent research by Frances McMillen [2008]). These include the Records of the Board of Visitors, including minutes and correspondence; and Records of the Office of the Superintendent, including administrative files, records relating to the preparation of the annual reports, and reports of subordinate units. The Records of Superintendent Charles H. Nichols, dating as late as 1877, may include some clues on the selection of the new cemetery and its design. The Records of Superintendent William W. Godding include documents concerning maintenance and construction that should be examined for any information concerning the sexton's cottage, as well as the cemetery itself. The Records of Superintendent William Alanson White cover the period when the cemetery was being expanded and may provide clues concerning that process. Also included are records concerning the 1906, 1919, and 1926 investigations – these may provide some clues concerning the East Campus Cemetery.

Another line of research involves examination of records pertaining to the government stones issued to St. Elizabeths to mark military graves. Invaluable research tools are the Card Records of Headstones Provided for Deceased Union Civil War Veterans, ca. 1879-ca. 1903 (RG92, Series 628). There is a separate file of headstone requests after this date, although often earlier stones are also included. Thus, searching these records is not always easy. It is also unclear how thorough the searches have been of the Quartermaster records for correspondence regarding gravestone requests from St. Elizabeths. Given the complexity of these files, it seems unlikely that they have been carefully examined, but this can't be determined given the information provided in Sluby (2002). Thus, additional research in RG98.2 is warranted.

Ultimately, it will be necessary to conduct a careful transcription of the extant stones in the East Campus Cemetery in order to begin understanding some of the issues related to pre-1919 burials and, especially, whether the monuments present in the cemetery can be used to accurately determine the location of specific burials.

Thus, while this overview provides an initial effort to better understand the cemetery and its development, there is much additional research that can – and should – be conducted.

Recommendations

We recommend additional historical research for the East Campus Cemetery following two broad lines of research: examination of National Archives RG418 for information specific to the development and operation of the cemetery and examination of National Archives RG92 for information on the stones requested by St. Elizabeths for their military burials.

Further research should be conducted on the Native American burials at St. Elizabeths. An effort should be made to reach out to the Native American community and encourage medicine men and tribal elders to visit the graves – this may include such traditional practices as burning sage and tobacco at the graves.

For the historical documentation to be correlated with the cemetery markers, it is critical that the markers themselves be transcribed and verified. This should be a high priority for the cemetery's overall preservation efforts.

ACCESS AND PEDESTRIAN ISSUES

Access

Although originally used for farming and maintaining the hospital's cattle, by 1908 the main east campus complex consisted of I, N, P, and R buildings. The main entrance provided access to an oval drive around the buildings and, in the rear, a well maintained road took visitors into a gully and across the property's northwest-southeast flowing drainage and up another gully. Eventually the road became a farm road and this lead to the cemetery and sexton's cottage. Nothing remains of this original road except for the small portion still within the cemetery.

While the paths in the oldest section of the cemetery were graveled, at some point the sexton's road was paved in asphalt, as was the road along the southern edge of the two oldest cemetery areas (sections 8-11 and 12-15). These roads, however, are no longer used and have received no maintenance in perhaps 20 or more years.

Today access to the St. Elizabeths east campus property is controlled by the District of Columbia Department of Mental Health and only authorized visitors are allowed on the grounds. The road network bears no resemblance to what was present historically and the development of the campus makes it difficult to imagine the late nineteenth or early twentieth century landscape.

Once on the campus today, access to the cemetery is primarily by way of a dirt road from the rear of the John Howard Forensic Pavilion up a steep slope to a locked chain link fence gate. This entrance is about 700 feet northwest of the original cemetery entrance.

While much of the original asphalt road is still clearly visible, a significant portion has been fenced into the construction zone of the new St. Elizabeths Hospital. The outer security fence goes up to the road's southern edge (providing the cemetery with no visual or physical buffer from the modern development). What does remain of the road to the sexton's cottage evidences widespread alligator cracking and, in many areas, complete failure. In many areas grass has broken through the asphalt. The poor condition of the road detracts from the landscape and the road serves no function.

Although redevelopment of the east campus is being proposed (RTKL 2008), access to the reconfigured District facilities, including the east campus cemetery, will remain restricted. We understand that the primary vehicular entrance to the new hospital will be through the existing entry point at Alabama Avenue. An internal roadway will lead to the hospital facility and connect to the building's main entrance drop off and pick up area.

With the demolition of the John Howard Forensic Pavilion, access will continue to be at the western end of the cemetery, although the precise plans have not yet been developed. While this moves access from the historic route, the proximity of the new facility likely provides little opportunity for modifications at this late date.

In the absence of clear future access plans, there are a number of unaddressed questions. Among them is balancing the security needs of the hospital with the descendants' right to access. In addition, with the plans for a National Consumer Memorial at St. Elizabeths we may expect an increase in public access to the grounds and, especially, at the cemetery

Figure 26. Access issues. Top left photo shows the dirt road from the existing parking up the slope to the cemetery. Top right photo shows the rear of the John Howard Pavilion with the cemetery to the left. Middle left shows the remnants of the asphalt road at the south edge of the cemetery. Middle right shows the asphalt road leading to the now demolished sexton's cottage. Lower left photo shows the asphalt road leading to the rear entrance into the cemetery off Robinson Place. Lower right photo shows one of the original ovals in the cemetery, with markers aligned around the open area.

(http://www.uspra.org/i4a/pages/Index.cfm?pageID=4050 and the article at http://www.behavioral.net/ME2/dirmod.asp?sid=&nm=&type=Publishing&mod=Publications%3A%3AArticle&mid=64D490AC6A7D4FE1AEB453627F1A4A32&tier=4&id=7F10AA0F5673417D8CE2EB6BB00ED371).

While public access to all historic properties is to be supported, it is necessary to recognize that this access comes at a cost. Increased visitation places additional maintenance and support strains on resources. Often the integrity and very character of a historic property can be degraded by increased public visitation. It is very critical that St. Elizabeths anticipate and plan for critical preservation functions.

Beyond the issue of how the public will be allowed access, there are associated issues of parking and pedestrian access (discussed below). With no projections of annual visitation, it is difficult to provide meaningful recommendations. It is, however, very important to ensure that parking does not further degrade the visual integrity of the cemetery. Thus, it is critical that the parking area be screened from the cemetery, so that the impact of the cemetery landscape is not affected by additional development activities.

The remnant asphalt roads should be removed from the landscape and the areas grassed over. As mentioned, the road is in very poor condition and, in the absence of the sexton's cottage, no longer serves any function. Consequently, we recommend that it be removed, soil compaction reduced, and the area grassed.

This road connects to a rear gate, opening onto Robinson Place. There appears to be no need for this entrance and we recommend that the curb cut be removed by the District and gate removed (or permanently locked).

Pedestrian Access

The proposed redevelopment of the St. Elizabeths east campus envisions considerable pedestrian access, with the nearby Congress Heights Metro Station placing much of the campus within a 5 minute walk of the metro. Given the nature of the neighborhood, this seems to be a long-term goal. In addition, its impact on visitation at the cemetery is uncertain since the hospital will remain closed. Consequently, it seems unlikely that the cemetery will see a great deal of pedestrian activity and we anticipate that most visitors will continue to arrive in automobiles for the foreseeable future. This, as explained previously, will necessitate appropriate parking.

However, the cemetery was never intended to have vehicular traffic and what little visitation it saw – or was anticipated by its designers – was pedestrian.

The initial pathways (in sections 1-27) were graveled. This was typical of low use cemetery design, although by the turn of the twentieth century it was far more common to see large pathways laid out using water or tar bound macadam. Smaller pathways were usually what were called New England tar walks, described by one cemetarian as "attractive to the eye and easy on the feet," they were considered both "durable and artistic" (Crandell 1919). The same could not be said for gravel walks since they required more maintenance and were thought to be difficult to walk on.

A significant problem with gravel was the constant incursion of grass. Today no evidence of the gravel walks remains. By the early twentieth century many cemeteries began to convert high maintenance features – such as gravel paths – to features that would be easier to maintain. Usually this meant that grassed paths would be used (Weed 1912:122; Anonymous 1917:506).

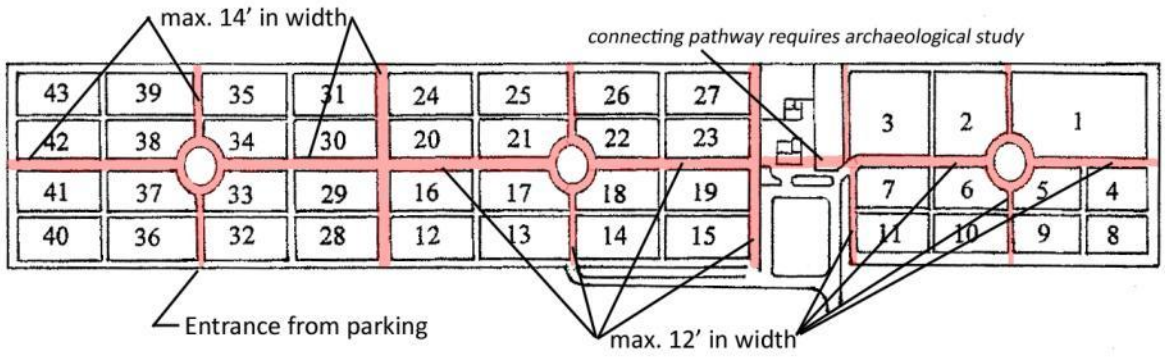

Figure 27. Suggested brick paving plan (brick paving shown in red), with recommended path widths.

Given the historical concern over the maintenance required for graveled pathways and the improbability of staffing adequate to maintain such pathways today, we cannot recommend returning to the use of gravel. Nevertheless, some mechanism for clearly delineating pathways is important – not only for public safety, but also to allow the public to better envision the cemetery and its extent.

One paving method already suggested by those associated with the National Consumer Memorial is the use of brick paving. This may represent a suitable compromise between historical accuracy, maintenance capability, and pedestrian safety. We do offer several recommendations.

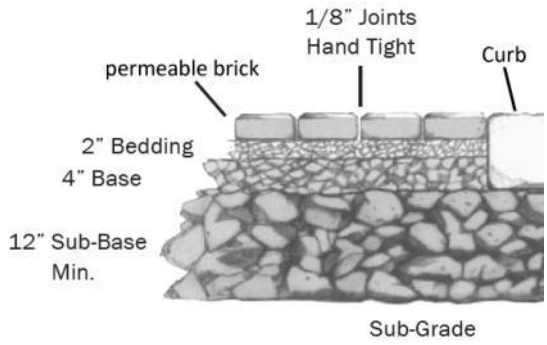

Figure 28. Cross section of permeable brick pathway.

We suggest the use of permeable pavers. One such example is the Aqua-Bric® by Advanced Pavement Technology (http://www.advancedpavement.com/pdf/aqua-bric1.pdf). These are not only pedestrian friendly, meeting ADA requirements, but are also environmentally sound, allowing water to move through the space between the blocks rather than running off. This will reduce erosion problems that might otherwise be associated with hard pavement in the cemetery.

The brick pathway needs to accurately trace the route of the primary connector walkways in the cemetery and also conform to the original dimensions in order to provide an accurate portrayal of the original cemetery landscape design. Not all pathways, however, need to be bricked. In fact, bricking all of the paths would not only be very expensive, but it would also begin to detract from the landscape, shifting visitor attention to what is, essentially, modern infrastructure. Consequently, we recommend only the primary north-south and central east-west connectors be bricked, as shown in Figure 27. This figure also provides the maximum pathways widths, which vary from section to section. It is very important that these maximums not be exceeded in order to prevent damage to any of the burials on-site.

Designers must also realize that the path connecting the western two-thirds of the cemetery to the eastern-most portion will cross directly over the archaeological remains of the sexton's cottage.

Since appropriately installed pavers will necessitate grading and installing base material up to 18-inches in depth (Figure 28), there is a very strong probability that archaeological remains will be affected – particularly since the cottage is thought to have had a cellar. Thus archaeological study is recommended prior to any construction (archaeological study may be required if there is federal funding, licensing, or permitting involved; archaeological study is certainly required in the spirit of the Secretary of Interior's Standards for Preservation). This study should minimally include traditional shovel testing to identify the sites limits for the cottage, with additional testing to determine the types of materials present.

We do not recommend routing the pathway around these archaeological remains since doing so would detract from the formality and strict linear appearance of the cemetery path. This pathway – about 1,500 feet in length – will help define the major east-west axis, focusing visitor's attention on the magnitude of the cemetery and the number of burials.

This requires about 45,000 square feet of brick paving.

Universal Access

There are few limiting factors for ADA compliance or universal access at the cemetery. The topography tends to be relatively gentle and the slopes appear to be within the limits allowable. The pavers themselves should be ADA approved.

The only limiting factor is the access from the parking area to the cemetery entrance. This may reflect a difference in elevation of about five feet.

While an expert in ADA compliant design should be consulted, generally the maximum slope of a ramp in new construction is 1:12, with the maximum rise for any run being 30 inches (every 30 inches there should be a level landing). This indicates the need for about six landings and about 60 feet of ramp. The access ramp would be entirely off the historic cemetery, confined to the newly constructed parking area.

Of course, the ADA or the Rehabilitation Act of 1973, is generally not interpreted to apply to cemeteries by the Department of Justice. Nevertheless, we are an aging population and it would be appropriate for the District to ensure access to the cemetery by the broadest range of the public possible.

For individuals with visual or ambulatory disabilities, the edge of a pathway or walk can pose a hazard. Consequently, the pathways should be designed with some ADA compliant indicator. Although this may take several forms, we recommend the use of rough textured pavers along both edges since they detract the least from the overall appearance.

Drainage

There are no curbs or gutters installed for any of the roads or pathways. We were not present during a period of heavy rainfall, so we are not certain how the cemetery drains the accumulated water.

However, looking at topographic maps of the cemetery (see, for example, Figure 12 and the close-up, Figure 20) we see that there were two natural drains running from the northeast to the southwest. The first begins in Section 3, draining part of Section 2 to the east, and runs southwestward through Sections 7 and 11. The second begins in Section 17 and is most noticeable in Section 13 where it drains southward.

The cemetery does appear to have a series of surface and subsurface drains, some appearing to have some antiquity. For example, there is a largely overgrown box culvert under Robinson Place, allowing under road drainage into the cemetery. This drain requires cleaning.

Figure 29. Drains in the East Campus Cemetery. Upper left shows what appears to be a box culvert running under Robinson Place that requires cleaning and evaluation. Upper right shows one of two brick box drains at the southern edge of Section 3. These require cleaning and video inspection. Lower left shows a close-up of the western brick box drain. Note the glazed drain pipe running southward to a modern drain close to the southern entrance gate. Lower right photo shows a modern drain at the south edge of Section 13.

It should also be evaluated – it may be inappropriate to allow surface drainage across the cemetery.

Of greater significance, we observed two probable nineteenth century brick drains at the south edge of Section 3 – one at the foot of grave 1910 and the other at the foot of grave 1898. The western drain reveals glazed drainage pipe running from the east (to the eastern drain). Drainage exits this box to the south. The grates for both drains are missing and the boxes themselves are filled with leaves and other debris.

These drains may connect to a modern drain identified at the southern entrance to the cemetery. This drain, too, should be opened and cleaned.

While we found no historic drains for the second drainage, we did identify a modern drain at the southern edge of Section 13.

The drains in the cemetery, once thoroughly inspected and cleaned, will require yearly inspections to ensure that they are operating correctly. We recommend that this inspection be included in the preventative maintenance program at the cemetery.

Recommendations

Steps must be taken to allow visitation to the cemetery. Parking, however, should be shielded and not allowed to visually intrude on the cemetery landscape.

The existing asphalt roads should be removed, soil compaction reduced, and the area grassed.

The rear entrance into the cemetery, off Robinson Place, should be permanently closed. The curb cut should be removed and the gate removed (or locked).

The pathway should accurately trace the primary north-south and central east-west pathways in the cemetery, including the three ovals. Pathway widths should conform as closely as possible to the original design.

Archaeological investigations will be necessary where the path crosses the sexton's cottage. This is of special importance since the cottage is thought to have had a cellar and this may be filled with archaeological materials.

Pathway design should ensure ADA compliance. This includes access to the cemetery from the parking area.

The concrete box culvert under Robinson Place should be cleaned and inspected. Special attention should be paid to any surface drainage across the cemetery.

The brick box drains should be cleaned and a video camera should be used to inspect the condition of the pipes. Additional drain cleaning may be necessary. Grates should be installed on the drains for public safety.

The modern drains at the south edge of Sections 11 and 13 both require cleaning.

These cemetery drains will require yearly inspections and cleaning – this task should be added to routine maintenance operations.

LIGHTING AND SECURITY ISSUES

Cemetery Lighting

The cemetery is surrounded by lighting. There are four utility pole cobra fixtures on the south side of Robinson Place. Additional cobra lamps are currently found at the rear of the John Howard Pavilion, as well as along the security fence of the new hospital. Both areas are also illuminated by pole mounted flood lights. Thus, while there are no lights in the cemetery proper, there is considerable lighting on the margins.

Figure 30. Example of cobra lamps along Robinson Place at the north edge of the cemetery. Note also the dilapidated and overgrown condition of the fence.

The cemetery would not have been lighted historically and so the absence of lighting today is entirely appropriate. We do not recommend the installation of lighting – it would be out of character and necessitate considerable construction, which would have the potential for impacting archaeological or skeletal remains. In addition, there is no evidence that lighting reduces vandalism in cemeteries, especially where there is no nearby security or public presence.

Vandalism

There is little corporate history for the cemetery and thus no documented cases of vandalism. Nevertheless, an individual who has worked at St. Elizabeths for a number of years does recount considerable problems with individuals from the public housing to the north cutting through the cemetery property and threatening workers.

Coupled with this, we see a very large number of stones damaged in a fashion that is consistent with vandalism. These stones were likely broken during the same period when St. Elizabeths was having significant problems with neighborhood crime.

This problem may have abated with the closing of the apartments, but we believe that this is an issue to which St. Elizabeths must devote additional attention.

Cemeteries do seem to attract vandalism, mischief, and drunken behavior. The cemetery should be routinely patrolled by the private security retained by St. Elizabeths. We understand that, at the present time, security comes to the cemetery only when there is a specific request (i.e., people are observed crossing through the cemetery from the housing areas to the north). This sort of response is inadequate and is not sufficient to ensure the safety of either the cemetery or those visiting it. Routine patrols – during both the day and night – are critical to the protection of the property.

Figure 31. Multiple rows of broken stones indicate probable vandalism in the cemetery. Note proximity to damaged fence section.

Coupled with the use of patrols, it is important for other staff to pay greater attention to the cemetery. The cemetery requires routine, on-going maintenance (discussed in a following section) and those conducting this maintenance should be encourage to report any new damage, as well as be constantly aware of any unauthorized individuals in the cemetery.

Without some means of identifying damage close to the time when it has occurred, it will never be possible to accurately determine the level of threat that the cemetery truly faces. Maintenance should develop a set mechanism for reporting, documenting, and responding to any damage or theft within the cemetery. Working these issues out ahead of time will make certain that problems are reported and that there is an appropriate response.

Any observed damage in the cemetery should be immediately reported to the District of Columbia police and an investigation should be conducted in an effort to identify, arrest, and convict vandals.

We find it extraordinary that in the entire *Saint Elizabeths East Redevelopment Framework Plan* there is not a single mention of crime, police patrols, vandalism, or law enforcement. While the authors may believe that redevelopment can occur without dramatic improvements in the police protection offered in the area, we do not believe that the cemetery can be considered safe without an overall improvement in security – involving both the St. Elizabeths campus security and the District police.

Hardening Targets

At St. Elizabeths another means of reducing vandalism is to make entry more difficult. After years of little or no maintenance, the boundary fence has been significantly compromised and is no longer effective.

Figure 32 reveals areas of fence damage, as well as areas where there are holes in the fence, allowing easy access into the cemetery. In many additional areas the fence is heavily covered in vegetation – making appropriate inspections impossible. Further compromising the effectiveness of the fence is the large amount of trash – making it appear as though the property is abandoned and uncared for.

It is absolutely critical that all of the trash be collected and disposed of as quickly as possible. We understand that St. Elizabeths has received some assistance in this effort and much work has been accomplished. This is excellent – it must continue until all trash is removed.

In addition, it is equally critical that all vegetation along the fence row be removed.

With trash and vegetation removed, we strongly recommend that the northern, western, and eastern boundary fences be replaced, using

Figure 32. Problems with the existing cemetery fence. Upper left shows damaged fence along Robinson Place that can be easily scaled. Upper right shows the fence with dense vegetation. Middle left shows the same fence with so much vegetation that its condition can't be adequately assessed. All of this vegetation should be removed. Middle right shows the existing gates on Robinson Place that should be removed. Lower left shows an iron fence that offers almost no security. A section is missing and replaced with a wood insert, part of which has been chopped away, allowing easy access into the cemetery. Lower right shows the existing southern gate. A maintenance gate is needed, but probably does not need to be this wide.

high security chain link fencing. Although more costly, there are several excellent reasons for this expense. First, using high quality materials will dramatically reduce long-term maintenance and repair costs. Second, the fence will provide a significantly greater deterrent. Third, the enhanced security will greatly reduce the liability of the hospital for increased visitation in the cemetery.

Although it isn't appropriate to provide specifications for the fencing, we can list what we believe are critical issues that should guide the development of specifications for the north, east, and west sides of the cemetery.

- Fence height of 8 feet.
- Use of 1-inch mesh and 9-gauge wire.
- Elimination of the top rail; a 7-gauge coil spring wire should be installed in place of the top rail.
- Add three strands of barbed wire on a three-strand 45-degree arm angled to the outside of the cemetery.
- The barbed wire arms should be bolted or riveted to the posts.
- Add a bottom rail, secured in the center of the two line post using a 3/8" diameter eye hook anchored into a concrete footing. The space at the bottom of the fence should be no greater than 2-inches above grade.
- Use a complete color polymer coated system for the chain link fabric, fittings, framework and gates.
- All bolts should be peened once installed.

We have not recommended the use of stainless steel barbed wire tape at the top and bottom of the fence, since this tends to dramatically increase the "fortified" appearance and may be found too aggressive for the proposed redevelopment activities. We do not, however, recommend any further modifications for the north fence.

If necessary, the east and west sides can be modified to have 1-inch mesh with 11 gauge wire. Additional modifications can include the elimination of the bottom rail (although the maximum 2-inch distance from grade should remain). A third modification if additional cost savings are essential would be the elimination of the barbed wire.

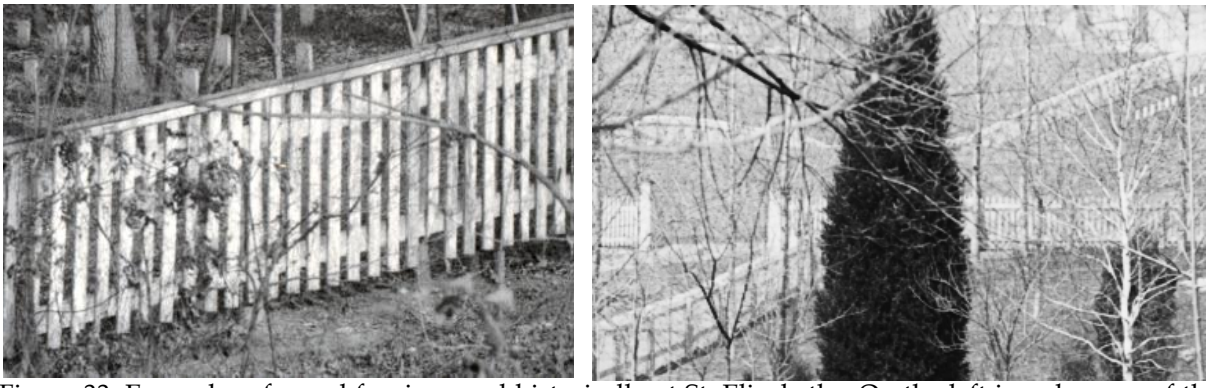

Figure 33. Examples of wood fencing used historically at St. Elizabeths. On the left is a close-up of the fence that surrounded the West Campus Cemetery. On the right is fencing that was associated with the East Campus Cemetery. Both date from 1897.

Along the south side, we recommend that the existing fence be replaced. Here, however, the level of security can be reduced. For example, while the 8 foot height should be maintained, a 2-inch, 9 gauge mesh is appropriate. The bottom rail can be eliminated, as can the barbed wire.

As an alternative along the south side, the hospital, as part of the National Consumer Memorial, may wish to consider the use of a wood picket fence matching those used historically. Two examples are shown in Figure 33.

While wood fencing does require more maintenance, this can be reduced by carefully selecting materials and ensuring careful workmanship. Such a fence would present a considerably softened landscape over chain link, yet still provide a clear visual boundary. High security is not needed at the south edge since this will be entirely within the closed campus.

If wood fencing is selected, we recommend using only treated wood for all components. With the reduced availability of Chromated Copper Arsenate (CCA) wood, there are several types of waterborne preservatives in common use: Chromated Copper Arsenate (CCA-C), Alkaline Copper Quat (ACQ-C, ACQ-D, ACQ-D Carbonate; e.g., Preserve and NatureWood®), Micronized Copper Quat (MCQ; e.g., MicroPro™, Smart Sense™), Copper Azole (CBA-A & CA-B; e.g., Wolmanized Natural Select™) and Sodium Borates (SBX/DOT; e.g., Advance Guard®). Each preservative usually has a number of variations available, the most important being the retention level, or amount of preservative that remains in the wood after the treatment process is complete.

We recommend only retention levels suitable for Ground Contact (even for those members above grade). These are designed as:

- 0.40 pcf for ACQ, CCA-C, MCQ;
- 0.41 pcf for CBA-A; and
- 0.21 pcf for CA-B.

Pcf stands for pounds of preservative per cubic foot (pcf) of wood.

Although use of hot-dipped galvanized fasteners is usually acceptable, to minimize maintenance, we recommend the use of only 304 stainless steel fasteners.

These fences were historically painted. Even with the use of various wood preservatives today, painting is still necessary, not to match historic appearance, but to help control surface checking (splitting or cracking). Painting depends on the type of wood used. For example, the manufacturer of Wolmanized products recommends allowing the wood to dry for 6 months before brush-application of an oil-based primer followed by an appropriate top coat.

We recommend that the north gate be entirely removed and that there be only two gates in the south – a pedestrian gate placed at the entrance to the brick path and a maintenance gate at a convenient location. Both should be limited to minimum size appropriate, but may be swing gates.

Theft

Thefts in cemeteries have dramatically increased nationwide. The East Campus Cemetery, however, has few objects that would be attractive to thieves and vandalism remains the primary concern.

Nevertheless, the very large number of orphan stones – stones out of the ground and simply lying around the cemetery – are possible targets. Consequently, it is good practice to secure these stones in safe storage until such time as appropriate repairs are possible.

Stones collected for storage, however, must be carefully documented, with information

Figure 34. Confederate Cross recovered from the West Campus Cemetery.

obtained concerning where the stone was found and where it is being stored.

An object at considerable risk would be the iron Confederate crosses since they are portable and unique. One intact specimen has been identified from the West Campus Cemetery and is in the hands of the GSA. We recommend that this cross be recast and replacements set in the cemetery. The use of reproductions would reduce the risk of vandalism and allow easy replacement should that be necessary.

Recommendations

No lighting should be introduced into the cemetery. Such lighting is out of character, damages the historic setting, and creates a visual intrusion.

It is essential that the St. Elizabeths security force routinely patrol the cemetery. Special attention should be paid to weekends and holidays.

The maintenance staff should walk through the cemetery on a daily basis, noting any damage or problems.

A policy should be developed for identifying, reporting, and responding to damage, vandalism, and theft within the cemetery.

All vandalism or other problems in the cemetery should be, as a matter of routine practice, reported to the DC police for investigation.

The cemetery requires replacement of its existing fence. We recommend the installation of a high security fence on the north, east, and west sides, with either an industrial fence or historic wood picket fence on the south side. The number of gates should be minimized and the gate on Robinson Place should be eliminated.

Items of particular value, such as the metal Confederate markers, should be recast and reproductions should be placed in the cemetery.

LANDSCAPE MAINTENANCE

Introduction

The cemetery for many years was well maintained, probably because of the sexton position – an individual exclusively devoted to the cemetery. Even up to about 1980 there seems to have been an effort to provide minimal maintenance. However, beginning about 1990 the level of maintenance declined drastically. RTKL (2008:16) suggests that much of this decline had set in by 1996. The Department of Justice alleges that the facility's preventative maintenance program, discontinued in 1999, led to much of the overall decay seen in the facility (letter from Wan J. Kim to Mayor Anthony Williams, dated May 23, 2006, http://www.usdoj.gov/crt/split/documents/St_Es_findlet_5-23-06.pdf). This decline is seen in the gradual loss of the western half of the cemetery to thick underbrush and trees (see Figure 24).

The initial section below therefore discusses immediate steps necessary to recover the cemetery, although much of this work has already been very admirably accomplished, almost singlehandedly, by Mr. Nathaniel Hill with the hospital's maintenance staff. Following is a more detailed discussion of the long-term maintenance of the cemetery.

Critical Brush Removal Steps

The hospital has already made significant strides under the direction of Mr. Nathaniel Hill to clear the cemetery of undergrowth. The work has been conducted partially by hand using a chainsaw and partially using a small bush hog. Both pieces of equipment can cause significant damage, but our inspection revealed that great care had been taken and we were able to find only one possibly damaged stone. While we would prefer to see none, given the difficulty of the task, this is still very good.

The brush is being cut, either by hand or by the bush hog, piled up, and removed from the property. The only modification we recommend is that the hospital use a chipper and store the resulting mulch for later use. While rental chippers are available to handle branches that range from 3 to 20 inches in diameter, the hospital may be able to obtain a chipper from the DC Department of Public Works.

With only Mr. Hill and one other individual, the work was progressing slowly but steadily. When Mr. Hill lost his one assistant the work ceased and, to date, has not resumed. It is critical that all of the brush from the cemetery be cut and removed. In addition, piles of debris still on the cemetery property must be removed.

It is essential that the hospital ensure that a crew adequate for this work is immediately appointed.

In addition, the cemetery was heavily covered with vines and many of these are still on the ground. With the warm weather, these and other vegetation will soon begin to grow back. It is critical that steps be taken to eliminate as much of this vegetation as possible.

Much of this *may* be Japanese honeysuckle (*Lonicera japonica*) an invasive species (see Figure 35). If so, manual and mechanical control is generally ineffective since removing the above ground portion of the plant generally stimulates dense regrowth. Cut material can also take root, requiring complete removal – a generally impossible task for large tracts.

Figure 35. Vegetation clearing issues. Top left photo shows dense vegetation remaining in the western third of the cemetery that requires removal. Top right photo illustrates cut limbs and logs that should be removed from the cemetery and chipped. Middle left photo shows tree stumps that require cutting flush to the ground to allow future mowing. Middle right photo shows the dense honeysuckle that will require chemical control. Bottom left photo shows thick poison ivy vines on one of historic trees in the cemetery. These require immediate attention. Bottom right photo illustrates a small patch of daffodils – historic vegetation that should be carefully protected.

Chemical control appears to offer the best prospects for the elimination of honeysuckle. Studies have shown a variety of approaches, but those found most effective by the US Forest Service include either:

- treating foliage with one of the following herbicides in water with a surfactant (July to October or during warm days in early winter) keeping spray away from desirable plants: a glyphosate herbicide as a 2% solution; or

- cut large vines just above the soil surface and immediately treat the freshly cut stem with a glyphosate herbicide as a 20% solution in water with a surfactant July to October.

Non-target plants may be killed or injured by root uptake using the first approach. The second is safe for surrounding plants. We did observe a few areas of intentional plantings, such as daffodils. Special care should be taken to avoid damaging these plantings since they represent items planted by families or friends of the deceased. We should also note that these herbicides are damaging to stones, so special care is required to avoid spraying on or around the gravestones.

In fact, we recommend the painting of all large, freshly cut stems or trees, regardless of species, with a minimum of 20% glyphosate (Roundup). This will help ensure that suckers do not sprout.

This technique should be used to control the poison ivy found growing on a number of the large, historic trees (Figure 35). Poison ivy is not simply a hazard to the public, it also will gradually strangle the tree, reducing its health. We recommend that steps be taken to immediately control the poison ivy.

All vegetation should be cut as close to the ground as practical. To assist in this the hospital should use brush cutters, capable of cutting stems at ground level. This is an essential step since it will allow future mowing using standard equipment.

It is also critical that all brush, vines, and debris be removed from the fences. This will first require that all trash be collected. We understand that volunteers have made considerable progress in this effort, but it must continue and should be accomplished before efforts are made to clear the vegetation.

We also recommend that a buffer of 20-50 feet be cleared at the west edge of the cemetery. Having such a buffer will increase security and help prevent vegetation from gradually invading the cemetery grounds.

Summary

The cemetery vegetation removal should follow these basic steps:

- Major clumps of vegetation should be removed using chainsaws and a bush hog with care to avoid damaging hidden stones.

- All vegetation should be chipped, with the mulch stored off-site for eventual use in the cemetery.

- Vegetation that can't be chipped should be removed from the cemetery grounds.

- Large vegetation stumps should be treated by painting with a 20% solution (or higher) of Roundup.

- Areas of invasive vegetation (such as Japanese honeysuckle) should be sprayed with a 2% solution of Roundup and a surfactant from July to October. It is likely that multiple treatments will be required.

- Large stumps or stubs should be cut to grade using a brush cutter.

Staffing

Ideally, in-house staff will be assigned for the care of the cemetery. This promotes continuity, familiarity with the resource, and consistency of treatment that is difficult to achieve if the work is contracted out.

For this to work, however, it is important that the caregiver understand the level of attention needed by a cemetery and that staffing needs and other issues are not calculated based simply on the acreage.

Level of Staffing

Cemetery maintenance generally requires a minimum of two trained staff and a supervisor for every 10 acres. This level of attention is based on a traditional rural landscape or memorial park cemetery. The 9 acre East Campus Cemetery, given the very low density of memorials, will have lower demands.

How low depends on the appearance expected. Like any landscape maintenance program, the level of public expectations should drive the actions implemented and these, in turn, will determine staffing needs. As these discussions make clear, however, cemetery maintenance is more than simply mowing the grass, even at a very simple cemetery such as we see on the East Campus.

Thus, we estimate that appropriate care of the cemetery will require a minimum of one staff person 3 days a week. Any less than this and it is likely that cemetery care will suffer and the hospital may expect complaints and dissatisfaction.

Mowing alone, using a 48-58 inch deck mower, will require one day. Using a nylon weed trimmer around stones after mowing will require another half day. And this does not include tasks such as resetting stones, cleaning drains, fertilizing, applying herbicides, clearing fence rows, collecting leaves, or pruning trees.

It does not appear that this level of attention has been routinely given to the cemetery, even when the East Campus was fully operational during the last half of the twentieth century. This accounts for the deteriorated conditions and will require that additional time be spent to improve the current conditions and make various necessary improvements.

Staff Training

Sadly, professional training in the landscape industry, at least among the public, is undervalued. This contributes to rapid turn-over and inappropriate maintenance activities – especially damaging when work is periodically contracted out, with minimal specifications and little supervision to the firm with the lowest bid.

In 2005 the Associated Landscape Contractors of America (ALCA) and the Professional Lawn Care Association of America (PLCAA) merged to form the Professional Landcare Network (PLANET). This organization offers several certification programs, but the most important for this particular cemetery is the Certified Landscape Technician – Exterior. The exam for this certification is a hands-on field test and candidates can be tested in Installation, Maintenance, or Irrigation. Technicians at the East Campus cemetery should be certified in Maintenance. This would establish credentials by meeting international standards for safe and effective operation of machinery and demonstrating a thorough understanding of all facets of the position.

A similar certification program is also offered by the Virginia Nursery and Landscape Association (Virginia Certified Horticulturist) at both a basic and advanced level. The Maryland Nursery and Landscape Association has a certification program for Professional

Horticulturist (as well as several advanced certifications).

There are training opportunities in the immediate area. For example, the Community College of Baltimore County offers a degree program in Horticulture that includes courses in soils and fertilizers, integrated pest management, turf management, and woody ornamentals. Review classes for the Virginia Certified Horticulturist exam are also offered by the Hampton Roads Nursery and Landscape Association.

The Quality of Supervision

Regardless of the credentials or certification, the complexity and fragility of cemetery landscapes requires that the technicians are well supervised and are held accountable for their performance. It is especially important, therefore, that the supervisory position be carefully defined. The selected individuals must not only be well trained and knowledgeable, but also possess demonstrated supervisory experience. The supervisors must be expected to manage activities in the cemetery.

Continuity of the Staff

Maintaining the continuity of a maintenance staff with a commitment to the preservation of a historic cemetery is critical. It not only serves to help ensure the highest possible quality of care, but also allows the specialized knowledge that accrues to be transferred to new staff members over time.

Trees

Historic and Current Conditions

The only historic photograph of the cemetery (Figure 19) reveals a young landscape – perhaps previously pasture or agricultural lands – recently planted in eastern red cedars and deciduous trees.

Examination of the aerial photographs shown in Figure 24 shows some consistency in the historic vegetation. Many of the larger trees present in the cemetery almost certainly have been present for much of the property's history. One of the most common is the bur oak (*Quercus macrocarpa*). These are slow to medium growing trees having a rounded, spreading silhouette with a dense crown and stout limbs. It is typically a large tree reaching a height and spread of 70 to 90 feet. It is also a long-lived tree, living for 200 years or longer.

Figure 36. Casey Trees map of the St. Elizabeth East Campus Cemetery area showing tree canopy cover.

The tree requires little pruning to develop a strong structure but the wood is susceptible to breakage. Surface roots are not a problem and it is drought tolerant. It was introduced to cultivation in 1804 (Adams 2004:95) and has been historically planted for its appearance.

While Eastern red cedars (*Juniperus virginiana*) were clearly planted based on the 1897 photograph, those on the cemetery today appear to be second growth – young trees that self-seeded and, with minimal maintenance, were allowed to grow.

It is likely that the cemetery's vegetation was managed only to the degree that was required to open and close graves. Most trees would simply have been "worked around," and the cemetery's burial ledger has numerous notes that graves were not used because of trees.

Maintenance Issues

Maintenance involves at least four basic issues: watering, fertilization, pruning, and pest control.

It seems unlikely that any of these trees have ever received water on a routine basis and have, instead, relied on rainfall. Fortunately, both the bur oak and Eastern red cedar are drought tolerant. While this is typically acceptable, the landscape plan should include provisions for deep-root water during periods of extreme drought – every reasonable effort should be made to ensure that historic plantings are not needlessly lost.

Using a root feeder without fertilizer, it is possible to apply water 12-inches below the surface. This approach can not only be used during drought, but also during extended periods of dry weather during the winter (as long as the temperatures are above freezing).

There have also been no provisions to provide fertilization to the trees. We typically recommend deep root fertilization – an approach where the liquid fertilizer is injected into the soil with a probe, typically 6 to 12-inches below the surface at a spacing of about 2 to 3 feet. This process not only provides fertilization, but also some aeration of the soil. An alternative approach uses a drill to excavate holes in a similar pattern which are then filled with a granular fertilizer. Either is acceptable.

While shoot growth (growth occurring in the present year) and foliage color are often used as indicators of nutrient deficiency, the best indicator of whether fertilization is necessary is a soil test. Samples should be taken every 3 to 5 years to determine whether any macro or micronutrients are lacking.

While no such tests are available for the East Campus Cemetery, the GSA's Bartlett study in the vicinity of the West Campus Cemetery found that soil pH levels were generally low, ranging from 4.3 to 5.2. Typically a range of 6.0 to 6.5 is recommended for most plants. The soil studies found that other macronutrients, such as potassium, were also low.

The hospital should immediately fund soil analyses for the trees in the cemetery. Although not free, the cost is very low – averaging about $9 per sample and 10 samples would be adequate to obtain a good overall understanding of the soil conditions. A listing of these test labs and information for interpreting the results can be found at http://www.hgic.umd.edu/content/documents/SelectingandUsingaSoilTestLabwithchart2_09.pdf.

It is best to fertilize trees when they are actively growing and have available water to help absorb nutrients. In the DC area this is from the spring, after new leaves emerge, through mid-season. Fertilizer should not be applied late in the season or during periods of drought.

In a cemetery setting organic fertilizers should be the primary choice. These materials, such as cottonseed meal and bone meal, have much lower salt indices than inorganic fertilizers – resulting in reduced salt uptake by monuments. This is important since salts cause staining, spalling, and deterioration of marbles, sandstones, brick, and even granites. In addition, organic fertilizers have a slower release rate and are easy on the root systems.

An excellent source explaining organic fertilizer choices is http://www.cmg.colostate.edu/gardennotes/234.pdf. The publication at http://pubs.caes.uga.edu/caespubs/pubs/PDF/C853.pdf provides information on converting

Figure 37. Tree issues in the East Campus Cemetery. Upper left photo shows a topped tree that probably requires removal and replacement. Upper right and middle left photos show a variety of trees with crossing branches that require cleaning and extensive pruning. Middle right and lower left photos show a double leader tree where one half of the tree has fallen, leaving a serious wound and extensive rot. The tree will probably require removal and replacement. Lower right photo shows a double leader tree that requires extensive pruning for the health of the tree and to reduce weight on the two trunks.

traditional inorganic fertilizer recommendations to safer organic recipes.

Many of the trees exhibit considerable damage, including dead wood, broken branches, and crossing branches. These trees will require pruning for either thinning or cleaning. Thinning is a technique of pruning that removes selected branches to increase light and air movement through the crown. This also decreases weight on heavy branches. The natural shape of the tree is retained and its overall health is improved. In cleaning, the pruning removes branches that are dead, dying, diseased, crowded, broken, or otherwise defective. This includes narrow crotches.

Trees should be pruned in such a manner as to preserve the natural character of the plant and in accordance with ANSI A300 (Part 1) - 2001 standards. In pruning, branches should always be cut just beyond the branch collar (an extension of the main stem) and not flush with the trunk. Large branches should be removed with three cuts to prevent tearing of the bark, which can weaken the trunk and lead to disease.

Under no circumstances are tree climbers (hooks, spikes, gaffs) to be worn while ascending, descending, or working in trees to be pruned.

We also observed several trees that are in decline. Trees do decline with age, especially when, for years, they have received little or no care. This decline is of special concern if the tree is allowed to become hazardous. The damage created by a downed tree can far exceed the cost of removal.

Trees should be inspected for potential threats to monuments, as well as general health. Ideally these inspections should be made yearly and after any storm where the winds exceed 55 mph. They should be pruned to remove potentially hazardous dead wood on a yearly basis, but safe pruning every 5 years by a certified arborist is acceptable.

Tree Removals

There are several trees in the cemetery that will almost certainly be recommended for removal. It is critical that removed trees be replaced by the same or similar species. In fact, this process can begin even before tree removal by the planting of replacement trees. This early intervention will provide the new trees with an opportunity to begin to fill in and maintain the current cemetery appearance.

Significant delay in fertilizing, pruning, evaluating, and removing trees in decline will likely result in the need to remove additional

Figure 38. Two examples of improperly removed wind-downed trees. No effort has been made to remove the stumps to grade, restore the uprooted soil, or reset the stones. This demonstrates the absence of appropriate maintenance the cemetery has suffered in the past several decades.

trees – thereby causing a more significant impact to the landscape and making it more difficult for new trees to begin to fill in the open areas. We discuss the process of selecting replacement trees below.

Trees that require removal should have their stumps cut as low as practical and left in place. We do not recommend stump grinding. The reason for this is that stump grinding has the potential to disturb the soil and may expose human remains. In addition, the process of stump grinding exposes stones to additional potential for damage.

There are several wind downed trees in the cemetery where the tree has been cut and removed, but no effort has been made to restore the landscape (Figure 38). The result is an eyesore and provides clear evidence of inadequate and inappropriate maintenance in the past.

We recommend that the above grade portion of the stump be removed. In cases where the root ball has lifted the soil above grade, it may be necessary to entirely remove the root ball, with the soil carefully examined by a forensic anthropologist for evidence of human remains (which, if found, will need to be reburied). Clearly it is far easier to maintain the health of the cemetery's trees and prevent incidents such as this.

Tree Replacements

Good practice for landscape conservation is to replace removed trees with the same or similar species.

Some trees, whether historically appropriate or not, should probably be avoided since they pose significant maintenance issues. These include trees that produce dense shade (causing problems with the turfgrass); trees that exhibit suckers or surface roots (also causing turfgrass problems, e.g., beech, honeylocust, linden, poplar, and willow); trees that drop large quantities of leaves, seeds, or sap (such as ash, black cherry, catalpa, ginko, horsechestnut, mulberry, and sweetgum); and trees that are especially weak or vulnerable to wind or ice damage (such as ash, black cherry, pine, poplar, red maple, silver maple, tuliptree, willow, and white ash).

Obviously, there is no such thing as a perfect tree. Many of the historically appropriate species have significant problems. At least some of these problems, however, can be overcome through judicious placement and appropriate planning.

Planting Issues

Locations chosen for planting should not interfere with gravestones, curbing, or fences. Issues of security should also be considered and the use of small trees that obscure eye level views should generally be limited or avoided.

Research is suggesting that trees, especially older mature trees, improve in health when turfgrass is removed under the branch spread and mulch is applied at a depth not exceeding 3 to 4-inches. This is a practice that could be productively employed at the East Campus Cemetery. Staff should be closely supervised to prevent over mulching of vegetation.

All replacement trees should be of at least 1-inch caliper and meet the minimum requirements of the American Nursery and Landscape Association's American Standard for Nursery Stock (ANSI Z60.1-2004).

Pest Control

During this visit we observed no obvious evidence of pests in the cemetery area. We suspect that little, if any, previous pest control procedures have been used.

Several of the trees, however, appear to exhibit significant rot.

The certified arborist should examine the trees for pest and disease problems at the same time the general inspection for pruning is conducted.

ISA Certified Arborists

All pruning within the cemetery should be performed by an International Society of Arboriculture (ISA) Certified Arborist, preferably one who is also an ISA Certified Tree Worker/Climber Specialist. The ISA Certified Tree Worker/Climber Specialist has knowledge in the major aspects involved in tree care including pruning, removal, cabling and safety. These are critical skills when working among historic monuments.

The District of Columbia employs at least four ISA Certified Arborists, primarily in the Urban Forestry Department. It may be that they can provide the hospital with and inspection and a written prescription, if not actually perform the work.

Otherwise, Table 5 lists several ISA certified arborists in the DC area that can be contracted to perform this work.

Summary

The plantings at the East Campus Cemetery may include trees that represent natural vegetation, but it is also clear from the historic photos that many of the plantings were intentional and represent part of the cemetery design. As such, it is critically important that these trees be carefully tended. All exhibit significant pruning and fertilization needs. On-going maintenance is critical to ensure that these trees remain in (or are returned to) good health.

It is nevertheless reasonable to remove those few trees that are in significant decline – allowing replacements to begin to fill in the canopy prior to the need for removing additional old specimens. While in general similar species should be selected, problem trees should be avoided.

Table 5.
List of ISA Certified Arborists in the District of Columbia

Name	Business	Phone
Chapman, Jack		202-863-1991
Taylor, Duke	Bartlett Tree Experts, Washington, DC	202-425-6730
Pitchford, Keith	Pitchford Associates, Washington, DC	202-333-3851
Powers, Kurt		703-626-6309
Wheeler, Lauren	Portico, Inc., Washington, DC	202-832-9660

The hospital, using an ISA certified arborist, should begin and maintain a routine program of inspection and pruning. All pruning within the Cemetery should be performed by an International Society of Arboriculture (ISA) Certified Arborist, preferably one who is also an ISA Certified Tree Worker/Climber Specialist. Table 5 provides a list of Certified Arborists for the immediate area.

Shrubbery

The cemetery does not evidence an abundance of plantings. In fact, we have identified a single yucca (*Yucca flaccida*) and an arborvitae (*Platycladus orientalis*). There may have been additional plantings, but they are no longer identifiable (or recognizable).

The yucca, known as a weak-leaf yucca, is similar to the common Adam's-Needle (*Yucca filamentosa*), but has more pliable, slightly narrower lancelolate leaves, that produce long, straight filaments at the leaf margins. The outer leaves recurve and rest on the ground justifying the "flaccida" epithet. It is not, however, clear whether this is a valid species or a variety of *Yucca filamentosa*.

Figure 39. Shrubbery at the East Campus Cemetery. Top is a weak-leafed yucca. Bottom is an incorrectly pruned arborvitae.

The arborvitae is a neat shrub with tight, compact foliage held in dense, fanlike vertical sprays. Although it can grow as tall as 50 feet with a spread of 20 feet, the arborvitae usually grows as a smaller, bushier shrub with a conical or teardrop shape.

Both are common cemetery plants, probably because they are very hardy and are evergreens.

The arborvitae, in particular, has a variety of wonderful characteristics – but it does not tolerate pruning well and it cannot rejuvenate from old wood; therefore when pruning is done, it must be undertaken with great care.

The arborvitae at the East Campus Cemetery (Figure 39) has unfortunately been dramatically affected by inappropriate pruning. The damage done to the plant is so severe that it cannot be salvaged. We recommend the removal of the plant and its replacement with a new arborvitae specimen. In the future, special care must be exercised to ensure those entrusted with pruning are knowledgeable and appropriately trained. As mentioned before, it is typically best not to prune an arborvitae, taking care in planting it where it may grow without overwhelming stones or pathways.

The cemetery also evidences a variety of situations where shrubs (or perhaps volunteer growth) adjacent to stones were removed, but no effort was made to restore the landscape by completely removing the plant or replanting. As with the downed trees previously discussed (and illustrated in Figure 38), this degrades the landscape and gives the cemetery an uncared for appearance.

When small plantings are removed an effort should be made to remove as much as the root ball as possible, to a depth of about 12-18 inches. This should not affect the burial deposit, but will remove the item from the landscape and allow a new planting to be put in, if appropriate.

Consequently, part of the maintenance program at the cemetery should involve the removal of dead plantings such as those illustrated by Figure 40.

We do not recommend that the cemetery utilize shrubs. These plantings require considerable maintenance and staffing is not

Figure 40. Examples of incompletely removed shrubs or volunteer vegetation. These require complete removal.

available to ensure that they are properly cared for. In addition, the available historic photographs do not suggest that shrubs were a significant component of the cemetery landscape. It would therefore be far better to replant the cemetery using trees such as oaks and, especially, cedars (since the latter do not produce significant debris that require removal).

Turfgrass Issues

Although Figure 41 illustrates what appears to be thick grass, it actually consists primarily of weedy species. There are areas of tall fescue, although in most areas no clearly defined turfgrass is present. The turf thins quickly to the west, where honeysuckle vines dominate and little grass is present.

Being located in a transition zone there are several types of turf that would work in the cemetery, including fine fescues, zoysia, or even Bermuda. Perhaps the best choice, however, is a turf-type tall fescue. The tall fescues are adaptable to a variety of site conditions, including sun and partial shade. They are among the grasses that are least prone to disease and insect infestations. They are drought tolerate. While in hot, dry conditions they typically go dormant, they recover when rainfall and cool conditions return. They require little fertilization and don't form a heavy thatch layer.

The benefit of establishing a turf grass goes beyond simple aesthetics. Having a turf grass would likely reduce the frequency of mowing, since weed mowing is done on a schedule to keep the different growing plants at a uniform height.

Establishing a Turf

The older cemetery sections (as shown in Figure 41) do have a rather worn and ragged turf. However, much of the property has no turf at all and is densely covered in partially mulched vines (see Figures 35 and 37). It is critical that a reasonably good stand of turf is developed in the cemetery.

We calculate that about 2,400 pounds of turf-type tall fescue seed will be required for seeding those areas with no grass. An additional 600 pounds should be used in broadcast overseeding of the existing turf areas.

Figure 41. Turf at the East Campus Cemetery showing clumps of tall fescue and many weeds.

Fescue can be seeded when soil temperature reaches 55°F in spring up until a minimum of 8 weeks before frost in fall. However, early fall is the optimum time to establish tall fescue from seed. While spring plantings of tall fescue may be successful, the risk of losing immature plants to summer heat and drought stress is greater.

A well prepared seedbed is essential for establishing fescue. A starter fertilizer can be worked into the seed bed prior to planting. The soil should be rototilled to a depth of 3 to 4 inches and firmed with a roller prior to seeding. The site must be well-drained so attention should be given to final grading of the site. Bermudagrass and some annual grasses are particularly troublesome in tall fescue turf. Steps should be taken prior to planting to eliminate these undesirable grasses. A non-selective herbicide such as glyphosate (Roundup) should be used to control bermudagrass prior to planting tall fescue – and has been previously recommended to eliminate the honeysuckle.

We recommend seeding at a rate of about 300-400 pounds per acre for broadcast seeding on new turf areas and at a rate of 200 pounds per acre for overseeding. Uniform distribution of seed is essential to develop a complete cover. Germination of seed and survival of seedlings are improved when seed are lightly covered with soil and the seedbed firmed. Some planters perform both of these operations. Where seed is broadcast on the soil surface, rake the seed into the soil or cover lightly with topsoil or mulch. After seeding, keep the seedbed moist for 14 to 21 days to obtain maximum germination. Then, gradually reduce the frequency of watering.

Overseeding is best done using a slit seeder that makes grooves in the soil and applies the seed. Overseeding should take place when the grass is actively growing, usually Mid-August through early October.

Additional information is available from the publication by the Maryland Cooperative Extension available at http://www.hgic.umd.edu/_media/documents/hg102.pdf.

It is likely that the most difficult aspect of the program will be providing adequate water for seeding or overseeding. The Maryland Extension Service recommends that if watering is not possible, seeding should be postponed until September, when temperatures are cooler and rainfall usually increases. Another approach is to hydromulch, which will help hold soil moisture.

Irrigation – Short Term and Long Term

Regardless, the success of a seeding program depends on having water available. Therefore, we recommend that the hospital lay down a temporary, above ground sprinkler system. This should be tied into a nearby fire hydrant, allowing good water volume (gpm) and good pressure (psi).

While the system can be zoned, it may be less costly to install valves for individual

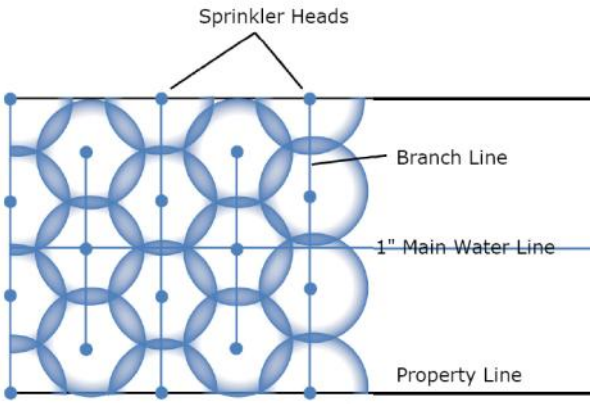

Figure 42. Portion of a sample above grade temporary irrigation plan for the western fifth (about 1.8 acres) of the East Campus Cemetery.

heads, allowing manual adjustment depending on the pressure available. The simple design shown in Figure 42 would require approximately 90 heads (including both full circle and adjustable heads), 90 valves, 1,530 feet of main line, and 2,300 feet of branch lines. The Hunter I-90 Large Area Rotor and Nozzle Set covers a radius of about 96 feet – the largest coverage area of commercial sprinklers. While higher volume agricultural sprinklers are available, they are also far more costly than the Hunter heads.

Any irrigation specialist can develop more complete specifications for such a project. The goal, however, should be to develop an inexpensive system that can be salvaged after it is no longer needed.

We do not recommend any permanent irrigation system for the cemetery. Such systems are intrusive, expensive, and often damaging to the stones themselves (through the constant exposure to high pressure water streams).

The hospital may, however, wish to consider as an option, placing the main line below grade and installing a permanent meter for the line. Run down the center of the property, it would be under the proposed brick walkway (except for where it crosses the sexton's cottage and requires archaeological study). It would then be possible to run hose bibs off this line every 200 feet, allowing the grounds to be spot watered as necessary. This would provide an important degree of protection for the landscape in the event of a drought.

If this option is selected, the hospital may wish to investigate the use of Woodford (or equivalent) sanitary hydrants that would provide back flow prevention, frost proofing to a depth of 2-3 feet, and allow the faucet to be locked to prevent misuse. These may significantly reduce the level of maintenance necessary at the cemetery (since winter drainage would not be required as long as the lines themselves were below the frost depth of about 20 inches).

Mowing

Tall fescue is cut from 2½ to 3½ inches during the spring and summer and 2½ inches in the fall and winter. Use a sharp rotary or reel mower and remove only one third of the leaf material per mowing. During peak spring and fall growth periods this requires mowing at 5-day intervals. If the lawn is mowed at the proper height and frequency, it is not necessary to remove grass clippings.

While we have little data on the current (or past) practices, the stones provide clear evidence of the management practices. A significant number exhibit scrapes typically caused by a mower deck scraping the stone. A number of the monuments also exhibit chips being removed by direct, and considerable, impact (Figure 43).

These types of damage are characteristic of inappropriate mowing – using equipment that is too large; allowing the grass (weeds) to grow too high, reducing the visibility of the stones; and aggressive mowing (often the result of attempting to too quickly complete the project and move on).

Figure 43. Examples of stone damage caused by mowers and trimmer line.

Also present are parallel striations. These are caused by inappropriate use of nylon trimmers with line that is too heavy.

Much of the cemetery is open, allowing use of large deck mowers. We do not, however, recommend the use of decks over 48-58 inches. These mowers must not be allowed to come closer than 12-18 inches to the stone; nylon string trimmers may then be used to complete the work up to the stone and between the individual stones in a given row.

We recommend that all mower decks be padded using closed cell foam attached by drilling the deck or using a non-tacky adhesive. This will help protect stones from occasional and inadvertent damage.

The nylon trimmer line must not be over 0.065 inch in diameter (currently a 0.095 inch line is being used, based on fragments collected on-site). This light gauge line is less likely to damage the stones. Ensuring that a heavier line is not being used will require careful attention of the supervisory staff since technicians will want to use a heavier line to reduce their work and speed up the process.

Fertilization and Weed Control

Given the dense cover of weeds, it is clear that no effort has been made in the past to control unwanted vegetation. Likewise, we suspect that no effort has been made to fertilize the cemetery. While fescues do not require extensive fertilization, they do require the application of nitrogen.

We strongly recommend that soil tests be conducted every two to three years, with fertilization based on the needs

as specified by these tests. Unfortunately the Maryland Cooperative Extension discontinued soil tests several years ago. Commercial laboratories capable of conducting the work are provided at http://www.hgic.umd.edu/content/documents/SelectingandUsingaSoilTestLabwithchart2_09.pdf.

Table 6.
Fertilization Recommended for Fescue

Grass	Sept.	Oct.	Nov.	Mid-May	June	Annual Total
Tall fescue	1.0	1.0	0	1.0*	0	2.0-3.0

pounds of nitrogen fertilizer per 1000ft² by month
* fertilize only if needed for color

Tall fescue grows on soils with pH of 4.7 to 9.5, but does best when soil pH is maintained between 6.0 and 8.5.

For top appearance, fertilization will be required, with multiple, light applications of nitrogen and a yearly application of potassium. Table 6 shows a typical fertilizer regimen.

Often an inorganic fertilizer is used since they are readily available. As previously discussed, *in order to minimize salt uptake by the stones, slow release organic fertilizers should be used and inorganic fertilizers should be avoided.*

Similarly, many herbicides contain salts and these, too, can migrate into stones, causing discoloration, spalling, and other damage. Thus the use of herbicides should be held to a minimum.

We recognize, however, some treatments will be necessary – both to eliminate the currently infested cemetery and to maintain the fescue. Weeds are best controlled when they are actively growing, with cool season grasses generally treated in the fall or spring. Pre-emergent herbicides may be applied for the control of crabgrass, goosegrass, and similar weeds between March and May.

Excellent advice regarding weed control in fescue can be obtained from http://www.hgic.umd.edu/content/documents/hg101.pdf.

Pest Control Practices

Similarly, there is no evidence that the cemetery caregivers have undertaken any pest control practices. White grubs are generally the most common pests of fescue, although fire ants arrived in Maryland in 1986 and are today confirmed in two counties, as well as the District of Columbia by the USDA Agricultural Research Service.

If fire ants are identified in the cemetery we recommend minimally that individual mounds be treated with a product such as Amdro (hydramethylnon). An even better approach is the use of Amdro as a broadcast fire ant bait while fire ants are foraging. After 10-14 days it should then be used as an individual mound treatment on any mounds that continue to be a problem. This approach should be used twice a year, typically in April or May and again in September or October.

Summary

The cemetery currently lacks a turf over approximately two-thirds of the property. Failure to establish a turf will result in extensive and on-going maintenance issues. As a result we recommend that the current dense weeds and vines in the East Campus cemetery be converted to a turf grass. Although Bermuda and Zoysia grasses can be grown in the District of Columbia, we believe a better choice is a turf type tall fescue.

To achieve this goal it will be necessary to use an herbicide to kill the existing weeds and vines, prepare the surface, and seed approximately 6 acres. Overseeding will be required on an additional 3 acres.

Once accomplished, there will be ongoing maintenance, such as weekly mowing during the growing season, weed control, and fertilization. This accounts for our previous recommendation that the cemetery will require, minimally, one staff person 3 days a week.

Recommendations

A critical first step is to remove the remaining volunteer growth on the cemetery. This includes completely clearing fence lines, cutting all stumps to grade, and applying an herbicide to prevent the regrowth of this vegetation.

Care must be taken to prevent damage to stones, trees, or other non-target vegetation during the cleaning process.

The absolute minimum level of staff required by the cemetery is three-person days per week for a maintenance individual plus additional staff supervision.

Continuity of staffing, appropriate training, and careful supervision are additional critical elements in the long-term care and appearance of the cemetery. All staff should achieve certification through one or more of several landscape programs, with an emphasis on turfgrass, ornamental plants, and maintenance.

Tree selection within the cemetery should be focused on historically appropriate species, such as eastern red cedar and bur oak. Species selected, however, should be evaluated to eliminate those with problems such as suckers, surface roots, inherent weakness, etc.

The trees in the cemetery require immediate attention by an ISA Certified Arborist. Many trees require pruning for either thinning or cleaning. All pruning should follow the requirements of ANSI A300 (Part 1) - 2001 standards. The pruning should be conducted by or supervised by ISA Certified Arborists.

This initial inspection should also determine which trees should be removed (and replaced), as well as develop specifications for and oversee a fertilization program.

In the future, all cemetery trees should be evaluated and pruned at least once every 5 years by an ISA Certified Arborist. A knowledgeable staff person should inspect the trees on a yearly basis and after any storm with winds in excess of 55 mph.

Trees that require removal should be cut as close to the ground as possible. Stumps should not be ground, but allowed to decompose naturally. The resulting hole should be periodically filled in.

Trees that have been blown down by the wind, taking up part of their root balls, require the stump to be cut to grade. The root ball must then be either removed or replaced in the ground. If removed, it will be necessary for a forensic anthropologist to ensure that no human remains are present in the root ball.

Shrubbery is not common in the cemetery, but where present care should be taken to respect this historic fabric and ensure its preservation. An arborvitae in the cemetery has been improperly pruned and cannot be renovated. It now requires removal and replacement.

It is necessary to establish a turf grass in the cemetery and we recommend a fescue. This will require elimination of the existing weeds, fertilization and pH adjustment, infilling of graves, seeding, and temporary above grade sprinkler lines.

We recommend the placement of a water line along the pathway, with the placement of Woodford (or equivalent) sanitary hydrants every 200 feet. This would allow for convenient stress watering as necessary.

The use of fescue will require mowing on a weekly basis, at a height of 2½ to 3½ inches during the spring and summer and 2½ inches in the fall and winter. Mowers no larger than a 58-inch deck should be used. All mowers used in the cemetery need to be equipped with closed cell foam padding.

The nylon trimmer line should be no thicker than .065-inch and the supervisor must ensure those using the equipment are properly trained and watched over to prevent damage to the stones.

We recommend the use of only organic, slow release fertilizers used on the cemetery grounds.

A weed control program using both pre-emergent and post-emergent herbicides will be necessary, at least initially to establish a good turf in the cemetery. Care must be exercised to minimize use of herbicides on or around the stones.

OTHER MAINTENANCE ISSUES

Signage

The District may be considering a unified theme for signage on the new East Campus as part of the current hospital construction. If so, then obviously the cemetery signage should conform to those requirements.

It is, however, important that any unified signage being proposed be used only where essential and that the signage should not block, obscure, or detract from character defining features of historic resources.

From a cemetery preservation perspective signage is of four basic types: identification, regulatory, informational, and interpretative. They are generally recommended in this same priority.

Identification signage might include the name of the cemetery and might also include the cemetery's date of founding and historic significance (i.e., listed on the National Register). Identification signage should be simple and dignified. It should not attempt to tell the story – that should be reserved for separate and more discreet informational signage.

We note that very recent twentieth century documents often refer to the property as the "John Howard Cemetery," perhaps because of its proximity to the John Howard Pavilion. John Howard (1726-1790) was an English philanthropist and the first English prison reformer. While certainly due commemoration, he has no specific historic connection with the cemetery. We recommend that the cemetery retain its simple historic name – East Campus Cemetery.

Regulatory signage specifies laws, regulations, or expected standards of behavior. The District should not assume that behind government gates there is no need for signage – the vandalism and damage seen during the mid to late twentieth century should dispel such notions. We recommend that the District develop signage dealing with, minimally, these issues (perhaps with some modifications of language as might be needed):

- Many of the stones in this cemetery are very old and may be easily damaged. Consequently, absolutely no gravestone rubbings will be allowed.
- Please refrain for leaning, sitting, or climbing on any monument. All children must be escorted by an adult.
- Absolutely no alcoholic beverages or fireworks are allowed in the cemetery. Proper conduct is expected at all times.
- No pets are allowed in the cemetery.
- Flowers will be removed by the staff 10 days after holidays or when the arrangements become wilted and unsightly.
- No plantings are allowed within the cemetery and St. Elizabeths Hospital will enforce its right to remove any plantings deemed inappropriate, diseased, or damaging the cemetery.
- For additional information concerning maintenance issues, please contact [individual and agency] at [phone number]. In case of emergency contact [phone number, likely 911].

Both identification and regulatory signage should be located at the entrance to the cemetery, immediately outside its boundaries.

The last two types of signage are informational (for example, historical information and directional signs) and interpretative (information on historic people buried in the cemetery).

It is important that both types of signage be discreet and not allowed to overwhelm the historic character of the cemetery. In fact, it is often better (especially for a cemetery such as this that has a very simply layout) to produce a brochure and map. Not only can this be carried with visitors (and serve as a souvenir if nicely produced), but it can be easily updated.

Military Stones

It may be useful to briefly recount the history of government or military stones. Not only will this help readers better understand the different types of stones present, but it will also help ensure the long-term maintenance of the cemetery's historic integrity and character.

The earliest markers were a wooden board with a rounded top and bearing a registration number and/or inscription. There was, however, no centralized system for recording burials. This system was formalized as a result of the Civil War with War Department General Order 75 creating the first organized system of marking graves. It wasn't, however, until 1865 – when the number of burials in national cemeteries approached 100,000 – that the military began to realize that wooden headboards presented significant maintenance issues. The movement away from wood was not immediate and it engendered considerable controversy between those who favored marble and those who favored galvanized iron (for research on the iron see http://www7.nationalacademies.org/archives/Galvanic_Action.html).

Finally, in 1873 Secretary of War William W. Belknap adopted the first design for government cemetery stones. For the known dead a slab 4-inches thick, 10-inches wide, and 12-inches in height above ground with a slightly curved top was standard. Known today as the "Civil War" type, it featured a sunken shield in which the inscription appeared in bas relief. This inscription was limited to the rank, name, and name of the state. At national cemeteries there was a control number carved on the stone (often on the back).

For unknown dead a 6-inch square block of marble was used intended to be set 4-inches above grade. On the top of the stone would be a number.

In 1879 Congress authorized known graves to be marked using the government stone in private cemeteries. The "Civil War" type was used not only for Civil War (Union forces only) dead, but also the deceased of the American Revolution, the War of 1812, the Mexican War, the Indian Campaigns, and eventually the Spanish-American War.

Initially the stones were provided by the Cemetery Branch of the Office of the Quartermaster General—an office within the War Department. With the information in hand from requesting parties, the government entered into contracts with a number of private companies, including S.G. Bridges; Gross Brothers (also given as W.H. Gross or W.H. & F.S. Gross), Lee, MA; Lee Marble Works, Lee, MA; William Mansen; Sheldon & Sons, West Rutland, VT; Stockbridge Marble Co., MA; Vermont Marble Co., Proctor, VT; and D.W. Whitney.

An early account suggests that the bidding process was not fully transparent or fair. One individual described S. G. Bridges (of Keokuk, Iowa) as, "a man of slight pecuniary responsibility, of no knowledge of the marble business, never having been in it, a jeweler by

trade, and a friend of the Secretary [of War] (Anonymous 1876:687).

Very early on bids were split between a number of firms, often with firms selling their successful bids to other firms. The result was not always good for the government or the stones themselves.

In 1898 there were four competitors for the stones: D. Borgia, of New York City, who bid $5 per stone on white Italian marble; the Stockbridge Marble Company, of West Stockbridge, MA on white marble at $1.35 a stone; Norcross Bros., of Worcester, MA for $3 a stone; and the Vermont Marble Company, of Proctor, VT, with a bid of $1.52 (*Stone*, October 1878, pg. 376

An 1879 War Department report reveals that

> Under the act of 3d of February, 1879, contracts for marking with marble headstones the graves of Union soldiers of the late war who have been buried in village or private cemeteries have been awarded to the lowest bidders who complied with the conditions of the advertisement by giving sufficient security.
>
> D. W. Whitney is the contractor for the greater portion of the work, at prices from $1.09 to $2.38 each grave, according to distance from quarry and difficulty of access. For the remainder of the work S. G. Bridges was the successful bidder, at $2.25 for graves in the State of Ohio, and $2.00 for all others not awarded to Whitney. It is estimated that the average cost of the headstones will be $2.28 each, set up in place (Secretary of War 1879:230).

A 1902 study of long-term durability resulted in the stones changing from 10-inches to 12-inches in width and the overall height of the stones was increased to 39 inches in 1903. The thickness remained at 4-inches. The use of the stone blocks for marking unknown dead was also terminated in 1903, with the graves from that point on marked with the same type of stone used for known dead (with an inscription such as "Unknown Union Soldier"). By 1904 Congress also authorized the use of these stones on civilian graves in post cemeteries.

In 1906, Congress authorized the permanent marking of Confederate graves. These stones would be the same size as the other markers, but would be pointed rather than rounded, with the shield omitted. By 1929 these stones were also authorized by Congress for use in private cemeteries. In 1930, the War Department modified regulations, allowing for the inscription of the Confederate Cross of Honor in a small circle on the front face of the stone above the standard inscription.

A new design was implemented after WWI. Known as the "General" type, the top remained slightly rounded, but was 13-inches in width and 4-inches thick. These stones were 42-inches in length. The inscription would include the name, rank, regiment, division, date of death, and state from which he came. In addition, for the first time a religious emblem (limited to the Late Cross for Christians and the Star of David for Jews) was adopted for use on the government headstones.

Granite was approved in 1941, but discontinued in 1947 because of their cost (upright granite markers were re-introduced in 1994). Flat markers were approved in marble in 1936, granite in 1939, and flat bronze in 1940. These flat markers are 24-inches in length, 12-inches in width, and 4-inches in depth (with the exception of the bronze markers that are only 3/16-inch in thickness) with engraved inscriptions (cast for bronze markers). The date of birth was authorized in 1944 and after the war

ended, WWI or WWII was authorized as part of the inscription. Korea was added in 1951 (and revised in 1954), Vietnam was added in 1964, Lebanon and Grenada were added in 1983, Panama and Persian Gulf were added in 1989, and Somalia was added in 1992. Today a total of 39 different religious symbols may be added to a government marker.

The historical sunken shield or "Civil War" style was only recently re-introduced (having been replaced by a far more modern inscribed shield style that was historically inappropriate and detracting from historic cemeteries). Style "XA" is 12-inches wide, while style "XB" is 13-inches wide. Both are 3-inches thick and 42-inches in height. Thus, while they are not perfect matches for the historic stones, they come very close and are a far better choice for replacements than the General style when necessary.

The East Campus Cemetery

Previous work at the West Campus Cemetery found some variation in the stones supplied early on by the government. For example, while the nominal width of 1873-1902 "Civil War" type stones was 10-inches, we found that stones varied from 8 to 10¾ inches. Curiously, none of the stones come close to the government's contracted 4-inch thickness – their thickness varied from 1½ to 2¼ inches (Trinkley and Hacker 2007).

Although we don't have this sort of detailed dimensional information for the East Campus Cemetery, we do know that at least two general styles are present.

The first are thin stones – similar to those in the West Campus Cemetery – that have the grave number engraved at the top of the shield. We estimate that there are approximately 147 of these stones, found in the first sections and representing the earliest burials. This style was replaced by the more conventional (i.e., thicker and wider) style, although the date that these heavier stones were introduced is not known. Both style markers are clearly shown by Figure 19. Taken in 1897, this photo indicates that the thin style must have been rather quickly discontinued.

Figure 44 shows several examples of both stones styles. Of particular note is that many of these stones, regardless of their style, are suffering from extensive erosion.

While the VA (National Cemetery Administration) provides replacement markers with a sunken shield and a bas relief inscription, these stones are 12-inches in width and 4-inches thick (the "XA" replacement). Thus, while similar, they are not good matches to the historic fabric.

Consequently, every reasonable effort should be made to maintain and preserve the original stones in the cemetery and replacement should be ordered only when conservation treatments will not satisfactorily maintain the stone.

Flowers and Other Grave Decorations

There are currently no flower regulations for the East Campus Cemetery. Historically this has not been an issue since the cemetery has had very low visitation. With the development of the National Consumer Memorial and the efforts to restore the cemetery, it is likely that visitation will increase. With that increased visitation there may be an increased need to deal with the length of time that flower arrangements are allowed to remain on graves. Without regulations, arrangements left for months detract from the dignity and beauty of the cemetery and promote additional trash problems.

We recommend that the hospital adopt a flower policy that will minimize maintenance problems.

Figure 44. Examples of Civil War style government stones at the East Campus Cemetery. The top row illustrates the thin, numbered style. The bottom row illustrates the more common 4-inch thick style.

First, as previously recommended, we believe that all flowers or arrangements should be removed by the cemetery staff 10 days after holidays *or* when the arrangements become unsightly. This will allow staff to remove faded flowers, Christmas decorations after the holidays, and so forth.

Floral policies are common at cemeteries. National cemeteries have relatively constrained policies:

- Natural cut flowers may be used throughout the year and "will be removed when they become unsightly."
- Artificial flowers may be used only from October 10 through March 15 (when cut flowers are often not widely available).
- Potted plants are allowed only from 10 days before and 10 days following Easter Sunday.
- Memorial decorations will be removed 7 days after the holiday.
- Christmas decorations are permitted only during the season and will be removed no later than January 10.

Many cemeteries also are beginning to also struggle with the public loading graves with personal items. This problem is not unique to the United States, but has also been documented in Great Britain, where solar-powered lights, statues and windmills have appeared.

Some cemeteries have established rules based entirely on appearances. At times these are intentionally vague, for instance referring to "adornments considered offensive or otherwise inconsistent with the dignity of the cemetery." In other cases a fairly detailed list of objectionable items has been devised: "Toys, stuffed or otherwise manufactured or sculptured animals, statues or statuettes, personal items and/or other unsightly objects."

Although aesthetics may reasonably be considered to suffer, most cemeteries attempt to control the proliferation on the grounds by the potential hazard to workers – a legitimate concern considering the use of mowers and trimmers on a routine basis.

Many cemeteries enact provisions that allow staff to remove such objects ("temporary objects") when they become withered, unsightly, or an obstruction to maintenance. Other cemeteries exclude all objects made of concrete, glass, plastic, fiberglass, metal, ceramic, and wood, again with the justification of safety.

Although this is not currently a problem at the East Campus Cemetery, we encourage cemeteries to enact suitable provisions when there is time for consideration and it doesn't appear the rule is directed at a specific individual.

Trash

The cemetery suffered from its proximity to an apartment complex, now closed, that offered public housing. Combined with an inadequate fence and lapsed maintenance practices, this resulted in the accumulation of a great deal of trash along the northern fence line (Figure 45). Trash, however, is not limited to the fence line; alcohol containers and other debris were found throughout the cemetery. Some of this trash (as shown in Figure 45) is very recent – indicating that the cemetery continues to have issues with security.

The control of trash – like vandalism – must be multi-faceted. First, all trash in the cemetery must be collected and removed. Second, a program must be instituted that involves trash collection on at least a weekly basis (and better on a daily basis). Third, it is equally critical that the cemetery have an appropriate high security fence to stop access by outside individuals. These three steps are critical and should be instituted by the hospital immediately.

Figure 45. Trash problems in the East Campus Cemetery. The top photo illustrates the thick accumulation of trash along the north boundary fence. The bottom photo illustrates a recently discarded alcohol container inside the cemetery – indicating that the hospital still has issues with trespassers.

The National Consumer Memorial

We have made occasional reference to the National Consumer Memorial proposed for St. Elizabeths East Campus Cemetery (see http://www.dbsalliance.org/site/PageServer?pagename=advocacy_recovered_dignity for additional information). This is a worthwhile project and it will certainly be a fitting honor for the hundreds of patients (today called consumers) buried at St. Elizabeths.

While it is perhaps appropriate to assume that such a memorial will work to help ensure the preservation of the East Campus Cemetery, it is nonetheless critical to ensure that the proposed plans are not allowed to overshadow the immediate needs of the East Campus Cemetery: removal of vegetation and trash, repair of damaged stones, improved fencing, and development of an appropriate turf. In fact, we imagine that all of these recommendations will be seen as critical for the National Consumer Memorial.

The memorial itself should not be allowed to drastically alter the historic landscape or the historic context of St. Elizabeths. It is important to realize that this cemetery, as part of the east campus, is listed on the National Register of Historic Places. It is critical that any plans for the memorial be sensitive and respectful of the cemetery.

It is important also to also examine all of the proposed undertakings in the context of what they will add to the maintenance needs of the cemetery. Too often projects – and especially their funding – are envisioned in the context of immediate improvements. The long-term consequences are often overlooked. If this were to happen at St. Elizabeths the cemetery would suffer. We have consistently outlined needs for maintenance improvement. Without, for example, additional dedicated staff for the care of the cemetery, the presentation of the National Consumer Memorial will suffer. What was envisioned as a remembrance could easily become a burden, soon to be overlooked.

Recommendations

Signage may be unified to fit that proposed for the newly developed hospital campus, but it should not block, obscure, or detract from character defining features of the cemetery.

The cemetery should receive identification signage. The historic name – St. Elizabeths East Campus Cemetery – should be retained.

Regulatory signage is critical at the entrance to the cemetery. It should minimally deal with proper care of the monuments, prohibiting rubbings and warning visitors of their fragile condition; it should clearly state the hours the cemetery is open; it should prohibit certain behaviors and actions, such as use of alcoholic beverages; it should established simple guidelines for plantings, as well as the placement and removal of floral and grave decorations; and it should include contact and emergency information.

Informational and interpretative signage might overwhelm the otherwise very simple cemetery. It may be better to develop a brochure than to install additional signage. Additional information could be included concerning the cemetery in the hospital website.

It is impossible to replace damaged government stones with exact matches. While the currently available National Cemetery Administration's "XA" stone should be used if replacements are necessary, every effort should be made to maintain the historic fabric.

The hospital should establish flower regulations for its cemeteries that maintain the dignity of the cemetery and allow reasonable maintenance. Seasonal displays, flowers, and plants should not remain on graves once they have died. St. Elizabeths should limit flowers on graves to a maximum of 10 days.

Regulations should also be enacted prohibiting "temporary objects" on the graves.

Trash is a problem along the northern fence. The cemetery requires a greater frequency of inspection and trash collection. It is also essential that a high security fence be erected as soon as possible.

The proposed National Consumers Memorial at St. Elizabeths should not be allowed to drastically alter the historic landscape or the historic context of the cemetery – which is listed on the National Register of Historic Places.

The National Consumers Memorial will require a heightened level of maintenance and funds for these on-going, perpetual maintenance needs must be identified and dedicated to the cemetery.

CONSERVATION ISSUES

What is Conservation?

Conservation is *not* restoration. Restoration means, very simply, making something "like new." Restoration implies dramatic changes of the historic fabric, including the elimination of fabric that does not "fit" the current "restoration plan." Restoration is inherently destructive of patina and what makes a property historic in the first place. The "restorer" of a property will know nothing of the Secretary of the Interior's Standards for Preservation and care even less.

One of the most important early writings was that of nineteenth century art critic and observer John Ruskin. In *The Seven Lamps of Architecture* published in 1849 and in particular, "The Lamp of Memory," Ruskin introduces us to the issue of trusteeship where he explains,

> it is again no question of expediency or feeling whether we shall preserve the buildings of past times or not. We have no right whatever to touch them. They are not ours. They belong partly to those who built them, and partly to all the generations of mankind who are to follow us.

Ruskin also crisply stated the difference between restoration and repair, noting that "restoration" means,

> the most total destruction which a building can suffer: a destruction out of which no remnants can be gathered: a destruction accompanied with false description of the thing destroyed.

In contrast, conservation can be defined as preservation from loss, depletion, waste, or harm. Conservation seeks to limit natural deterioration.

Conservation will respect the historic fabric, examine the variety of options available, and select those that pose the least potential threat to the property. Conservation will ensure complete documentation, whether it is of cleaning, painting, or repair. Conservation will ensure that the work done today does not affect our ability to treat the object tomorrow.

Standard for Conservation Work

As Ruskin stated, the District of Columbia's St. Elizabeths Hospital is the steward of this cemetery, holding what belonged to past generations in trust for future generations. As such the District and the hospital bear a great responsibility for ensuring that no harm comes to the property during its watch.

One way to ensure the long-term preservation of this property is to ensure that all work meets or exceeds the Secretary of the Interior's Standards for Preservation, discussed on pages 2-4 of this study.

Another critical requirement is that the hospital ensure that any work performed in the cemetery – whether it involves the cleaning of a stone, the repair or replacement of a government stone, or the reconstruction of a heavily damage monument, is conducted by a trained conservator who subscribes to the Standards of Practice and Code of Ethics of the American Institute for Conservation of Historic and Artistic Works (AIC).

These Standards cover such issues as:

- Do no harm.
- Respect the original fabric and retain as much as possible – don't replace it needlessly.
- Choose the gentlest and least invasive methods possible.
- Is the treatment reversible? Is retreatment possible?
- Don't use a chemical without understanding its affect on the object and future treatments.
- Don't falsify the object by using designs or materials that imply the artifact is older than it is.
- Replication and repairs should be identified as modern so that future researchers are not misled.
- Use methods and materials that do not impede future investigation.
- Document all conservation activities – and ensure that documentation is available.
- Use preventative methods whenever possible – be proactive, not reactive.

The AIC Code of Conduct also requires a professional conservator provide clients with a written, detailed treatment proposal prior to undertaking any repairs; once repairs or treatments are completed, the conservator must provide the client with a written, detailed treatment report that specifies precisely what was done and the materials used. The conservator must ensure the suitability of materials and methods – judging and evaluating the multitude of possible treatment options to arrive at the best recommendation for a particular object.

General Types of Stone Damage

Although a stone-by-stone assessment was not included in this assessment, it is possible to provide some general observations concerning the types of problems faced by the East Campus Cemetery.

When considering the government issued stones, St. Elizabeths can reasonably expect the question to be asked, "Why not simply replace the damaged stones?" The Veterans Administration offers free replacements.

There is certainly an obligation to ensure that a veteran's grave is appropriately marked and honored. This requires that the stone be intact, appropriately set, and legible. But, as previously explained, St. Elizabeths is also a historic site and, being listed on the National Register of Historic Places, the District must also ensure that the Secretary of the Interior's Standards be closely followed.

We believe that complying with both mandates, while not simple, is possible. Historic fabric – the original government stones – should be preserved wherever possible. This means, for example, if they are broken but can be repaired – they should be. The original historic fabric should not be replaced simply because it is expedient or less costly to do so.

On the other hand, where the original monument can no longer serve its original function – to mark the grave of a veteran who service his or her country with honor and dignity – then the monument should be retired and replaced. Monuments must not be allowed to become nothing more than "fabric" or artifacts – they are, after all, also memorials.

Broken Stones

There are numerous examples of broken stones. Many of these stones should receive a high priority for conservation treatments since the stones are on the ground and subject to additional damage, increasing the eventual cost of appropriate repair.

In most cases gravestones are fragile and their repair is delicate work. There are many commercial products on the market, used by many commercial stone companies, which are

Figure 46. Types of stone repair issues at the East Campus Cemetery. The top row illustrates a civilian and military marker that both require blind pin repair. The left middle photo shows a thin military stone that should be repaired rather than replaced. The right middle photo shows a stone requiring resetting. The lower left photo shows a government stone that requires resetting. The lower right photo shows a stone that requires resetting, as well as consolidation to prevent additional spalling and sugaring of the marble.

inappropriate for (and often damaging to) historic stone.

Appropriate conservation treatment will usually involve drilling and pinning, carefully aligning the two fragments. Threaded 316 stainless steel rod (or occasionally fiberglass) and epoxy adhesives formulated for the specific stone are used in this type of repair. Diameters and lengths of pins vary with the individual application, depending on the nature of the break, the thickness of the stone, its condition, and its expected post-repair treatment.

Afterwards it is often necessary to replace lost fabric. Suitable materials include a variety of Jahn products (for example, M120 for marble). Infill should be compatible with the substrate, be vapor permeable, and contain no latex or acrylic bonding agents or additives.

Sometimes pins are not used in a misguided or misinformed effort to save time and money. Instead the pieces are simply joined using a continuous bead of epoxy or some other adhesive. Experience indicates that for a long-lasting repair, particularly in structural applications, use of pins is necessary. Moreover, most adhesives are far stronger than the stone itself, meaning that failure of the repair is likely to cause additional damage to the stone.

Tilting and Simple Resets

Throughout the cemetery we observed seriously leaning stones. When this occurs to headstones, the tilt may be sufficient to precipitate a ground break, dramatically increasing the cost of repair. For other monuments the tilt may be sufficient to cause the monument to fail and, in the process, there may be additional damage, or it may fall on a cemetery visitor.

There should be a special effort to maintain the appearance of government stones. While St. Elizabeths is not a national cemetery, this does not dismiss the need to maintain simple dignity and respect. Thus, while strict uniformity is not necessary, all stones should be straight and aligned to the eye.

Monuments should never be reset using concrete, but rather should be set in pea gravel. This approach allows the stone some movement should it be accidentally impacted by lawn maintenance activities. The pea gravel will also promote drainage away from the stone, helping the stone resist the uptake of soluble salts.

While resetting can be quickly accomplished by a conservator, it is also a task that volunteers can perform with minimal training. The exception are larger stones that require drilling and pinning for stability.

Consolidation

Many of the stones are “sugaring.” This is severe surface softening and disaggregation of the calcite particles. It occurs as the binding holding the particles together is removed by environmental factors such as acid rain and pollutants.

Typical treatment for this problem involves a process conservators term consolidation. There is much controversy concerning consolidation with those questioning the appropriateness of the procedure noting that the process has a relatively short history. They are also concerned that the use of consolidants may limit future treatment. Those favoring consolidation note that there are a variety of studies showing efficacy of the treatment.

Studies have shown that consolidants tend to weather out within 10-15 years, perhaps minimizing the concern over reversibility. On the other hand, at least one researcher is suggesting that the by-products left behind during that weathering process may preclude future consolidation treatment. This work, however, is not published and has not been formally peer reviewed.

Our view is that consolidation is an appropriate treatment when the monument is in such an advanced state of deterioration that it has little chance for survival for an additional decade. In such cases, it seems worth both the cost and time to provide some additional protection in the hope that during the next decade additional research will point to alternative treatments.

The typical treatment consists of using the Prosoco product HCT following by the use of Prosoco's OH100. HCT is a hydroxylating conversion treatment intended for marble and limestone. It forms a stable, well-adhered, hydroxylated, conversion layer on carbonate mineral grains. This conversion layer dramatically increases the resistance of marble and limestone surfaces to acid attack, and improves the ability of a variety of chemical compositions to react with or bond to such surfaces. It prepares the stone for effective consolidation, improves resistance to acid-rain, and strengthens sugaring stone. It is applied as three sprays to the point of rejection, followed by a finishing rinse also applied to the point of rejection following the manufacturer's recommendations.

In contrast, OH100 is a silicic ethyl ester that replaces natural binding material lost to weathering. It can be used on sandstone, marble, slate, and granite, although it is most commonly used on the first two. Typical treatments involve two or three cycles (6-9 separate applications) per the manufacturer's recommendations.

Table 7.
Estimated Conservation Needs

Treatment	Section													
	1	2	3	6	8	9	12	13	14	15	16	17	18	Totals
Resetting	62	15	10	2	1	3	4	7		2	2	6	3	117
Blind Pin Repair	4	1	2	1			1		1					10
Replacement Stones	29	13	8					1	6	4		2	13	76

Unfortunately, OH100 does not conform with the limitations on VOC content for architectural coatings implemented the District of Columbia. Thus only HCT may be used on the stones at the East Campus Cemetery.

Ferrous Pins

At least one stone was observed with ferrous pins and this stone should be given a high treatment priority since, left untreated, the corrosion will cause significant spalling, cracking, and breakage of the stones. In these cases it will be necessary to use diamond core drills to remove the ferrous pins. They will then need to be replaced with stainless steel pins.

After any such repairs it will be necessary to fill the voids with a natural cementitious composite stone material resembling the original as closely as possible in texture, color, porosity, and strength. This type of repair may be used to fill gaps or losses in marble and is often used to help slow scaling of bedded sandstone exposed to the elements.

Estimated Conservation Needs

Table 7 lists the approximate number of stones per section that require conservation treatment, as well as the type of treatment recommended.

Although many of the names can no longer be identified for those graves with missing stones, it is still appropriate to place markers with the standard, "Unknown U.S. Soldier." This provides a very powerful visual impression, as well as ensuring at all military graves are appropriately marked.

We do not recommend the marking of civilian patient graves since they were not marked originally. In their case we believe the absence of markers provides a most compelling possible statement.

Cleaning of Monuments

A significant amount of damage may result from inappropriate cleaning techniques. The most common cleaning technique is the use of a bleach product – probably because bleach (either sodium hypochlorite or calcium hypochlorite) is widely available and inexpensive. It is, nevertheless, unacceptable for historic monuments since it creates an artificially white marble and, over time, will cause erosion and yellowing of the stone.

Table 8 discusses problems with a variety of "common" stone cleaning processes widely used by commercial firms and the public. Cleaning is largely an aesthetic issue – we saw few examples where soil or biologicals were actually causing damage to the monuments.

The safest product for cleaning is simply low pressure (less than 90 psi) water and a soft bristle brush. When some other assistance is needed, a product that has been found safe for most stones is D/2 Architectural Anti-microbial distributed by Cathedral Stone.

Table 8.
Comparison of Different Cleaning Techniques

Cleaning Technique	Potential Harm to Stone	Health/Safety Issues
Sand Blasting	Erodes stone; highly abrasive; will destroy detail and lettering over time.	Exposure to marble dust is a source of the fatal lung disease silicosis.
Pressure Washers	High pressure abrades stone. This can be exacerbated by inexperienced users. Pressures should not exceed 90 psi.	None, unless chemicals are added or high temperature water is used.
Acid Cleaning	Creates an unnatural surface on the stone; deposits iron compounds that will stain the stone; deposits soluble salts that damage the stone.	Acids are highly corrosive, requiring personal protective equipment under mandatory OSHA laws; may kill grass and surrounding vegetation.
Sodium Hypochlorite & Calcium Hypochlorite (household and swimming pool bleach)	Will form soluble salts, which will reappear as whitish efflorescence; can cause yellowing; some salts are acidic.	Respiratory irritant; can cause eye injury; strong oxidizer; can decompose to hazardous gasses.
Hydrogen Peroxide	Often causes distinctive reddish discolorations; will etch polished marble and limestone.	Severe skin and eye irritant.
Ammonium Hydroxide	Repeated use may lead to discoloration through precipitation of hydroxides.	Respiratory, skin, and eye irritant.
D/2 Architectural Antimicrobial	No known adverse effects, has been in use for nearly 10 years.	No special precautions required for use, handling, or storage.

Recommendations

All work in the cemetery should be conducted by trained conservators who subscribe to the Code of Ethics and Standards of Practice of the American Institute for Conservation of Historic and Artistic Works (AIC). This should be the minimum level of competency required by the District on all projects.

There are some treatments, such as the approximately 117 stones to be reset, that can be undertaken by volunteers or hospital staff with training and oversight.

There are about 10 stones that require repair by drilling the stone for insertion of stainless steel rods. These repairs should only be conducted by a conservator.

The hospital should strictly limit replacement of historic fabric and require that all such modifications receive approval. There are, however, about 76 missing stones that require replacement using the "XA" style stone inscribed, "Unknown U.S. Soldier."

Cleaning is a low priority, but when undertaken should be conducted in a manner that does not endanger the stone or eliminate the stone's patina.

RECOMMENDATIONS AND FUNDING

With limited funds it is often critical that organizations establish priorities for cemetery conservation/preservation projects, ensuring that the most essential issues are dealt with first. There are different methods for assigning priorities; here we have simply organized the recommendations in a logical progression.

Our first priority tasks include essential policy and planning issues upon which future actions are based. First priority issues also include issues that we believe are essential for the long-term preservation of the cemetery. Some of these are associated with planning for the National Consumer Memorial. It is essential that those plans do not "get ahead of" preservation concerns. With careful planning, the goal of the consumer groups can be easily integrated into the overall preservation needs of the cemetery. We recommend that these first priority issues be resolved (either budgeted, accepted, approved, or accomplished) within the current fiscal or calendar year based on their importance to the cemetery.

Second priority tasks are those that we recognize will take several years to accomplish. Many build upon the planning initiated by first priority tasks. Others involve what we recognize will be construction activities for the National Consumers Memorial that may be one or two years out. Consequently, we recommend that these second priority items be resolved during 2010 or 2011.

The third priority tasks are those that can be spread over the next five years, through 2013.

The costs are based on the best information available at this time. Some are derived from previous projects; others are determined using Means Site Work and Landscape Cost Data. All estimates are 2009$. We are not, however, construction estimators and strongly recommend that local costs be evaluated since there may be significant differences.

A few tasks could not be assigned a cost since we do not have adequate information to allow a sound judgment to be made. Other costs are assigned a value of "n/c" (no cost) since the activity is one that could be undertaken by the current in-house staff. Some "n/c" tasks can also be reasonably be undertaken by volunteers.

To implement the recommendations we offer will entail budgeting of at least $379,400 spread over the next five years. We acknowledge that this is a very large sum, but caution that the central problem is that the St. Elizabeths Hospital has, for decades, deferred these costs, creating cumulative problems and significant declines in the cemetery's condition. Portions of the cemetery were abandoned to vegetation, the surrounding fence was allowed to become tattered and breached, stones were vandalized and displaced, and drains received no maintenance.

Any effort to create a National Consumers Memorial demands that these problems be corrected and that a long-term maintenance plan be developed.

First Priority Tasks

The cost of the first priority tasks at the cemetery is at least $149,000. The majority of this amount – $115,000 – represents funding a replacement fence for the cemetery. This is a critical step – both for the safety of cemetery visitors and also to ensure that investments in

the cemetery are not degraded through vandalism and trespass. While the level of security to the south, as well as the east and west, need be no higher than a standard industrial quality fence (for long-term, low-maintenance service), the northern boundary requires a high security fence which is more costly because of its special provisions.

Another critical first step is having all trees in the cemetery evaluated and pruned by an ISA certified arborist – estimated to cost $15,000. The trees are an essential aspect of the landscape and they must not be allowed to further deteriorate.

A third significant cost is the transcription of the remaining markers in order to allow planning (such as acquiring replacement markers) to proceed. This has already been funded by the hospital and is in progress.

Other costs include completion of vegetation clearing ($6,000), development of a vandalism reporting program ($1,000), and replacement of an arborvitae ($300).

The other first priority tasks require changes in administrative or maintenance policy, or can be accomplished with existing staff. Although these are not assigned a dollar amount the hospital should not assume they are less significant or less critical to the cemetery's preservation. In fact, they are of equal importance since they affect how the cemetery will be perceived and dealt with in the long-term.

Second Priority Tasks

These tasks have a combined cost of $204,500 and are intended to be spread over years two and three (perhaps with allocated funding of approximately $100,000 per year).

While there are a number of tasks, the single largest is approximately $120,000 allocated to the seeding of approximately 6 acres and overseeding of about 3 additional acres. At the present time there is no turf in the cemetery and the failure to create one will dramatically degrade the property's appearance. Perhaps more importantly, without a maintainable turf, the hospital will be fighting a losing battle in trying to maintain the overall appearance of the property. In addition, we can't imagine any sort of meaningful consumer memorial without at least a rough turf (which is all that we are proposing).

The seeding will require at least a temporary above grade water supply, which is included in our cost estimate. However, a longer-term view suggests that a permanent water line, running along the central pathway across the site, would be an excellent investment. It could not only serve the immediate needs of establishing a turf, but would provide the ability to spot water the cemetery as needed. The cost of a permanent line is estimated to be about $7,800.

The next largest cost involves the resetting of about 117 stones, replacement of about 76 missing stones, and repair of at least 10 others, at a cost of $41,900. This task, like the turf, is critical for the overall appearance of the cemetery – as well as for the respect owed to those who served our country.

With the establishment of a turf, there will be associated needs, including an estimated $10,000 a year for pre- and post-emergent weed control. These costs will continue at least until the turf has become established.

Prior to the establishment of the turf, we recommend that the remaining asphalt roads in the cemetery be removed. This cost is estimated to be about $4,600 including removal of the debris and preparing the area for seeding.

Another maintenance task is inspection – and cleaning, if necessary – of the cemetery drains. This is estimated to cost about $2,200.

Ongoing costs will include about $3,000 a year for tree inspection and maintenance by an ISA certified arborist. There will be additional ongoing maintenance costs associated with the National Consumer Memorial. These costs should be carefully identified and the consumer groups should ensure that the maintenance costs are adequately funded.

Shifting away from maintenance and looking at interpretation, we recommend about $15,000 for additional research on those buried in the cemetery, including the Native Americans.

Third Priority Tasks

The estimate for these third priority tasks, completed by 2013, have a cost of $25,900. This, however, is probably low and almost certainly additional costs will present themselves.

The largest sum – $12,000 – involves the creation of an informational brochure for the cemetery. This brochure should include the cemetery history (based on the recommended research), cemetery regulations, and information concerning some of those (as either groups or individuals) buried in the cemetery.

The brochure, however, does not eliminate the need for signage and we allocate about $6,000 for identification and regulatory signage.

The final budgeted amount of $1,000 involves placing grates on the cemetery drains.

Other Costs

The only source we have identified capable and willing to recast replacement Confederate markers is Robinson Iron Works in Alexander City, Alabama. The cost of making the pattern, green sand casting in Class 30 gray iron, application of an epoxy primer, and delivery is $230 per marker. This is a third priority and is also a task that may be adopted by an outside group, such as the Sons of Confederate Veterans or Daughters of the Confederacy although there are public relations issues that must be considered prior to such an effort. Regardless, these graves were historically marked by iron crosses and we recommend that similar devices be used to maintain the historic context of the cemetery.

We have recommended that the cemetery requires a dedicated staff person 3-days a week, plus supervisory time. We assign no annual cost to this, but estimate that this cost is reasonably $20,700 a year before fringe benefits. This is an ongoing expense and should be added to the list of recurring expenditures.

Also not included in the cost assessment is the additional maintenance cost of the National Consumers Monument. It is critical that the hospital and the monument committee realize that such costs exist and must be budgeted. Indeed, some part of the cemetery upkeep is legitimately attributable to the National Consumers Monument since it is thought that visitation to the cemetery (and thus wear and tear, as well as level of care anticipated) will increase as a result of the monument.

We know of no way to calculate this cost statistically; therefore, it may be an issue for negotiation. Nevertheless, the funding must be provided to ensure that the cemetery and monument do not decline in appearance.

Table 9.
Prioritization of Recommendations

Priority	Task	Cost
First – this fiscal or calendar year	1.1 All decisions regarding modifications, alterations, additions, or other actions affecting the East Campus cemetery should be carefully evaluated against the Secretary of the Interior's Standards for Preservation.	n/c (administrative policy)
	1.2 The remaining historic fabric and context of the cemetery should be protected. In particular existing intrusive elements should be removed, buffered, or minimized where possible; new intrusive features should be prevented.	n/c (administrative policy)
	1.3 The redevelopment plan for the East Campus does not adequately or appropriately consider primary or secondary impacts to the cemetery. We minimally recommend a substantial setback at the west edge of the cemetery, that visual screening be used to eliminate visual intrusion, that steps be taken to minimize noise intrusion, and that the proposed building height be reduced from the proposed 6 to 8 stories to no higher than 3 stories.	n/c (lobby effort & coordination with DC SHPO)
	1.4 Much of the cemetery's character derives from the solitude, simple design, and undulating topography. These elements have particular importance and should be closely guarded.	n/c (planning policy)
	1.5 For the historical documentation to be correlated with the cemetery markers, it is critical that the markers themselves be transcribed and verified. This should be a high priority for the cemetery's overall preservation efforts.	$11,700 (in progress)
	1.6 No lighting should be introduced into the cemetery. Such lighting is out of character, damages the historic setting, and creates a visual intrusion.	n/c (administrative policy)
	1.7 It is essential that the St. Elizabeths security force routinely patrol the cemetery. Special attention should be paid to weekends and holidays.	n/c (existing staff & contract)
	1.8 The maintenance staff should walk through the cemetery on a daily basis, noting any damage or problems.	n/c (existing staff)
	1.9 There should develop a policy for identifying, reporting, and responding to damage, vandalism, and theft within the cemetery.	$1,000
	1.10 All vandalism or other problems in the cemetery should be, as a matter of routine practice, reported to the DC police for investigation.	n/c (administrative policy)
	1.11 A critical first step is to remove the remaining volunteer growth on the cemetery. This includes completely clearing fence lines, cutting all stumps to grade, and applying an herbicide to prevent the regrowth of this vegetation.	$6,000
	1.12 Care must be taken to prevent damage to stones, trees, or other non-target vegetation during the cleaning process.	n/c (existing staff)
	1.13 The trees in the cemetery require immediate attention by an ISA Certified Arborist. Many trees require pruning for either thinning or cleaning. All pruning should follow the requirements of ANSI A300 (Part 1) - 2001 standards. The pruning should be conducted by or supervised by ISA Certified Arborists. This initial inspection should also determine which trees should be removed (and replaced), as well as develop specifications for and oversee a fertilization program.	$15,000
	1.14 Tree selection within the cemetery should be focused on historically appropriate species, such as eastern red cedar and bur oak. Species selected, however, should be evaluated to eliminate those with problems such as suckers, surface roots, inherent weakness, etc.	n/c (maintenance policy)
	1.15 Shrubbery is not common in the cemetery, but where present care should be taken to respect this historic fabric and ensure its preservation.	n/c (maintenance policy)

Table 9, cont.
Prioritization of Recommendations

Priority	Task	Cost
First – this fiscal or calendar year, cont.	1.16 An arborvitae in the cemetery has been improperly pruned and cannot be renovated. It now requires removal and replacement.	$300
	1.17 Signage may be unified to fit that proposed for the newly developed hospital campus, but it should not block, obscure, or detract from character defining features of the cemetery.	n/c (planning policy)
	1.18 The hospital should establish flower regulations for its cemeteries that maintain the dignity of the cemetery and allow reasonable maintenance. Seasonal displays, flowers, and plants should not remain on graves once they have died. St. Elizabeths should limit flowers on graves to a maximum of 10 days. Regulations should also be enacted prohibiting "temporary objects" on the graves.	n/c (maintenance policy)
	1.19 Trash is a problem along the northern fence. The cemetery requires a greater frequency of inspection and trash collection.	n/c (existing staff)
	1.20 The cemetery requires replacement of its existing fence. We recommend the installation of a high security fence on the north, east, and west sides, with either an industrial fence or historic wood picket fence on the south side. The number of gates should be minimized and the gate on Robinson Place should be eliminated.	$115,000
	1.21 The proposed National Consumers Memorial at St. Elizabeths should not be allowed to drastically alter the historic landscape or the historic context of the cemetery – which is listed on the National Register of Historic Places.	n/c (administrative policy)
	1.22 The National Consumers Memorial will also require a heightened level of maintenance and funds for these on-going, perpetual maintenance needs must be identified and dedicated to the cemetery.	undetermined
	1.23 All work on grave markers should be conducted by trained conservators who subscribe to the Code of Ethics and Standards of Practice of the American Institute for Conservation of Historic and Artistic Works (AIC). This should be the minimum level of competency required by the District on all projects.	n/c (administrative policy)
Second – over next 2 to 3 years	2.1 We recommend additional historical research for the East Campus Cemetery following two broad lines of research: examination of National Archives RG418 for information specific to the development and operation of the cemetery and examination of National Archives RG92 for information on the stones requested by St. Elizabeths for their military burials.	$10,000
	2.2 Further research should be conducted on the Native American burials at St. Elizabeths. An effort should be made to reach out to the Native American community and encourage medicine men and tribal elders to visit the graves – this may include such traditional practices as burning sage and tobacco at the graves.	$5,000
	2.3 Steps must be taken to allow visitation to the cemetery (such as the National Consumer Memorial). Parking, however, should be shielded and not allowed to visually intrude on the cemetery landscape.	n/c (cost borne by consumer memorial)
	2.4 The existing asphalt roads should be removed, soil compaction reduced, and the area grassed.	$4,600
	2.5 The rear entrance into the cemetery, off Robinson Place, should be permanently closed. The curb cut should be removed and the gate removed (or locked).	n/c (DC Street Dept.)
	2.6 The pathway should accurately trace the primary north-south and central east-west pathways in the cemetery, including the three ovals. Pathways widths should conform as closely as possible to the original design.	n/c (cost borne by consumer memorial)

Table 9, cont.
Prioritization of Recommendations

Priority	Task	Cost
Second – over next 2 to 3 years, cont.	2.7 Archaeological investigations will be necessary where the path crosses the sexton's cottage. This is of special importance since the cottage is thought to have had a cellar and this may be filled with archaeological materials.	n/c (cost borne by consumer memorial)
	2.8 Pathway design should ensure ADA compliance. This includes access to the cemetery from the parking area.	n/c (cost borne by consumer memorial)
	2. 9 The cemetery drains require yearly inspections and cleaning – this task should be added to routine maintenance operations.	$2,200
	2.10 The absolute minimum level of staff required by the cemetery is three-person days per week for a maintenance individual plus additional staff supervision.	not determined
	2.11 Continuity of staffing, appropriate training, and careful supervision are additional critical elements in the long-term care and appearance of the cemetery. All staff should achieve certification through one or more of several landscape programs, with an emphasis on turfgrass, ornamental plants, and maintenance.	n/c
	2.12 In the future, all cemetery trees should be evaluated and pruned at least once every 5 years by an ISA Certified Arborist. A knowledgeable staff person should inspect the trees on a yearly basis and after any storm with winds in excess of 55 mph.	$3,000/year
	2.13 Trees that require removal should be cut as close to the ground as possible. Stumps should not be ground, but allowed to decompose naturally. The resulting hole should be periodically filled in.	n/c (maintenance policy)
	2.14 Trees that have been blown down by the wind, taking up part of their root balls, require the stump to be cut to grade. The root ball must then be either removed or replaced in the ground. If removed, it will be necessary for a forensic anthropologist to ensure that no human remains are present in the root ball.	n/c (maintenance policy)
	2.15 It is necessary to establish a turf grass in the cemetery and we recommend a fescue. This will require elimination of the existing weeds, fertilization and pH adjustment, seeding, and temporary above grade sprinkler lines.	$120,000
	2.16 We recommend the placement of a water line along the pathway, with the placement of Woodford (or equivalent) sanitary hydrants every 200 feet. This would allow for convenient stress watering as necessary.	$7,800
	2.17 The use of fescue will require mowing on a weekly basis, at a height of 2½ to 3½ inches during the spring and summer and 2½ inches in the fall and winter. Mowers no larger than a 58-inch deck should be used. All mowers used in the cemetery should be equipped with closed cell foam padding.	n/c (maintenance policy)
	2.18 The nylon trimmer line should be no thicker than .065-inch and the supervisor must ensure those using the equipment are properly trained and watched over to prevent damage to the stones.	n/c (maintenance policy)
	2.19 Only organic, slow release fertilizers should used on the cemetery grounds.	n/c (maintenance policy)
	2.20 A weed control program using both pre-emergent and post-emergent herbicides will be necessary, at least initially to establish a good turf in the cemetery. Care must be exercised to minimize use of herbicides on or around the stones.	$10,000
	2.21 The hospital should strictly limit replacement of historic fabric and require that all such modifications receive approval.	n/c (administrative policy)
	2.22 The approximately 76 missing stones should be replaced using the "XA" style stone inscribed, "Unknown U.S. Soldier."	$11,400 (for compilation of list and setting)

Table 9, cont.
Prioritization of Recommendations

Priority	Task	Cost
Second – over next 2 to 3 years, cont.	2.23 Approximately 117 stones require resetting (this can also be accomplished by volunteers)	$16,000 (resetting cost)
	2.24 There are about 10 stones that require repair by drilling the stone for insertion of stainless steel rods. These repairs should only be conducted by a conservator.	$14,500 (conservation cost)
Third – over next 3 to 5 years	3.1 The concrete box culvert under Robinson Place should be cleaned and inspected. Special attention should be paid to any surface drainage across the cemetery.	n/c (existing staff)
	3.2 Grates should be installed on the drains for public safety.	$1,000
	3.3 The modern drains at the south edge of Sections 11 and 13 both require cleaning.	n/c (existing staff)
	3.5 Items of particular value, such as the metal Confederate markers, should be recast and reproductions should be placed in the cemetery.	$6,900
	3.6 The cemetery should receive identification signage. The historic name – St. Elizabeths East Campus Cemetery – should be retained.	$1,000 (signage)
	3.7 Regulatory signage is critical at the entrance to the cemetery. It should minimally deal with proper care of the monuments, prohibiting rubbings and warning visitors of their fragile condition; it should clearly state the hours the cemetery is open; it should prohibit certain behaviors and actions, such as use of alcoholic beverages; it should establish simple guidelines for plantings, as well as the placement and removal of floral and grave decorations; and it should include contact and emergency information.	$5,000 (signage)
	3.8 Informational and interpretative signage might overwhelm the otherwise very simple cemetery. It may be better to develop a brochure than to install additional signage. Additional information could be included concerning the cemetery in the hospital website.	$12,000 (signage)
	3.9 Cleaning is a low priority, but when undertaken should be conducted in a manner that does not endanger the stone or eliminate the stone's patina.	n/c (administrative policy)

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Trinkley, Michael and Debi Hacker
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2002 *Wild Indians: Native Perspectives on the Hiawatha Asylum for Insane Indians.* Online. http://www.power2u.org/downloads/NativePerspectivesPeminaYellowBird.pdf.

APPENDIX 1.

MICHAEL TRINKLEY

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Education/Training

1974	B.A., Anthropology, University of South Carolina, Columbia
1976	M.A., Anthropology, University of North Carolina, Chapel Hill
1980	Ph.D., Anthropology, University of North Carolina, Chapel Hill
1997	Non-Destructive Investigative Techniques for Cultural Resource Management, NPS Workshop, Fort Scott National Historic Site, Fort Scott, Kansas (geophysical techniques)
1999	Jahn Installer Workshop, Cathedral Stone Products, Inc., Jessup, Maryland (3 days) (certified installer 9906811-SC)
2001	Preservation & Care of Brownstone Buildings, Technology & Conservation Conference, Boston, Massachusetts
2003	Lime Mortar Workshop, U.S. Heritage, Chicago, Illinois
2004	Preservation Masonry Workshop, School for the Building Arts, Charleston, SC (2 days)
2005	International Lime Conference, Orlando, Florida
2005	Edison Coatings Workshop, Richmond, Virginia (1 day)
2005	Historic Masonry Preservation Workshop, John Lambert, Campbell Center for Historic Preservation Studies, Mt. Carroll, Illinois (1 week)
2005	Preservation Masonry Workshop, College for the Building Arts, Charleston, SC (2 days)
2005	Masonry Analysis & Testing Workshop, Berkowitz and Jablonski, Campbell Center for Historic Preservation Studies, Mt. Carroll, Illinois (1 week)
2005	Jahn 4-Hour Workshop, Cathedral Stone Products, Columbia, SC

2006	Stone Carving and Restoration Workshop, Traditional Building Skills Institute, Snow College, Ephraim, Utah (3 days)
2007	Integrally Colored Concrete Workshop, Ron Blank & Associates, AIA Continuing Education, Columbia, SC
2008	IACET Aerial Work Platforms Training; Supported Scaffold Safety Training; Cranes, Chains, Slings and Hoist Safety Training, Columbia, SC
2008	Georgia Urban Agriculture Council & UGA Cooperative Extension Outdoor Water Use Registration Program Certificate #P86X9G4467

Memberships

American Institute for Conservation of Historic and Artistic Works
US/ICOMOS – Brick, Masonry & Ceramics Committee
Association of Preservation Technology
Preservation Trades Network
National Trust for Historic Preservation
Association of Gravestone Studies

Abstract of Cemetery Conservation/Preservation Experience (not inclusive of legal/archaeological experience):

1992	Reviewer of National Trust for Historic Preservation publication on historic cemeteries publication by Lynette Strangstad.
1998-99	Principal Investigator, Survey and Documentation of African-American cemeteries in Petersburg, Virginia. Including mapping, grave location, and development of historic context. (with Preservation Consultants, Charleston, SC).
1998-99	Conservation activities, Maple Grove Cemetery, Maple Grove United Methodist Church, Waynesville, North Carolina.
1999	Instructor, Cemetery Preservation: Making Good Choices Workshop, Virginia Association of Museums, Petersburg, Virginia.
1999	Instructor, Cemetery Preservation: Making Good Choices Workshop, Georgia Local History Conference, Augusta, Georgia.
2000	Consultation regarding maintenance and clearing of Ricefield's Woodville Cemetery, Georgetown County, South Carolina.
2000	Invited Speaker, Cemetery Conservation Techniques, Historic Cemetery Preservation Workshop, Maryland Historical Trust, Annapolis, Maryland.
2000	Preservation assessment, Summerville Cemetery, Augusta, Georgia.

2001	Assessment and preservation plan for Glenwood Cemetery, Thomaston, Georgia.
2001	Reconnaissance survey of cemeteries in Richland County, South Carolina.
2001	Preservation guidelines for St. Paul's Cemetery, Augusta, Georgia.
2001	Instructor, Cemetery Preservation: Making Good Choices Workshop, Restoration International Trade Event, New Orleans, La.
2001	Instructor, Cemetery Preservation: Making Good Choices Workshop, National Preservation Institute, Washington, D.C.
2002-2003	Conservation program, Old Waxhaws Presbyterian Cemetery, Lancaster County, South Carolina.
2003	Treatment of markers at the Vardeman Cemetery, Lincoln County, Kentucky.
2003	Consultation concerning cemetery walls and pathways, Maple Grove Cemetery, Waynesville, North Carolina.
2003	Invited Speaker, Preservation of African American Cemeteries Conference, 2003, Helena, Arkansas.
2003	Instructor, Cemetery Preservation: Making Good Choices Workshop, Washington County, Georgia Historical Society, Sandersville, Georgia.
2003	Preservation assessment, Old City Cemetery, Sandersville, Georgia
2003	Instructor, Cemetery Preservation: Making Good Choices Workshop, National Preservation Institute, Washington, D.C.
2003	Treatment of markers at Oakview and Riverside cemeteries; examination of burial vaults in white and African American sections, City of Albany, Georgia (FEMA funded).
2003	Preservation assessment, Historic Cemeteries at Five Cemeteries, Bannack State Park, Bannack, Montana
2003	Instructor, Cemetery Preservation: Making Good Choices Workshop, Bannack State Park, Bannack, Montana
2003	Consultation concerning cemetery brick wall, Midway Church, Midway, Georgia.
2004	Treatment of markers at Richardson Cemetery, Clarendon County, South Carolina.
2004	Instructor, Cemetery Preservation: Making Good Choices Workshop, National Preservation Institute, Washington, D.C.
2004	Treatment of markers at Maple Grove Cemetery, Waynesville, North Carolina.

2004	Consultation regarding State Historical Marker, Roseville Cemetery, Florence County, South Carolina.
2004	Consultation regarding the Mary Musgrove Monument, Musgrove Mill State Park, Laurens County, South Carolina.
2004	Invited Speaker, Cemetery Preservation Workshop, SC Genealogical Society Annual Meeting, Walterboro, South Carolina.
2004	Treatment of markers at Wrightsboro Cemetery, Thomson, Georgia.
2005	Treatment of markers at Pon Pon Cemetery, Colleton County, South Carolina.
2005	Treatment of markers at Walnut Grove Plantation, Spartanburg County, South Carolina.
2005	Consultant on cemetery fence theft, Save Austin's Cemeteries, Austin, Texas.
2005	Treatment of markers at Richardson Cemetery (Second Phase), Clarendon County, South Carolina.
2005	Instructor, Cemetery Preservation: Making Good Choices Workshop, National Preservation Institute, Washington, D.C.
2005	Treatment of marker in Oakview Cemetery, Albany, Georgia.
2005	Treatment of markers at Trinity Cathedral, Columbia, SC.
2005	Preliminary preservation recommendations, Randolph Cemetery, Columbia, SC.
2005	Treatment of markers in Presbyterian Cemetery, Union, SC.
2005	Instructor, Cemetery Preservation: Making Good Choices Workshop, Save Oklahoma's Cemeteries, Muskogee, Oklahoma.
2005	Instructor, Cemetery Preservation: Making Good Choices Workshop, National Preservation Institute, Las Vegas, New Mexico.
2005	Treatment of marker, Reynolds Homestead, Critz, Virginia.
2005	Assessment and preservation plan for Lewis Cemetery, King and Queen County, Virginia. King and Queen County Historical Society.
2006	Treatment of markers in Presbyterian Cemetery, Union, SC (second phase).
2006	Assessment and preservation plan for Pine Lawn Memorial Gardens, Aiken, South Carolina. SC Department of Archives and History, Columbia.
2006	Assessment of Unadilla Cemetery, Unadilla, Georgia.

2006	Invited Speaker, Planning a Cemetery Preservation Project, People and Places: South Carolina's Seventh Annual Statewide Historic Preservation Conference, SC Department of Archives and History, Columbia, South Carolina.
2006	Assessment and Preservation Plan, Memory Hill Cemetery, Milledgeville, Georgia.
2006	Assessment and Preservation Plan, Springwood Cemetery, City of Greenville & Friends of Springwood Cemetery, Greenville, South Carolina.
2006	Invited Speaker, Cemetery Rehab, South Carolina Landmark Conference, SC Department of Archives and History, Aiken, South Carolina.
2006	Assessment, Town of Dedham, MA cemetery, Vollmer Associates, Boston.
2006	Assessment and Preservation Plan, Naval Medical Cemetery Portsmouth Cemetery, Portsmouth, Virginia.
2006	Instructor, Cemetery Preservation: Making Good Choices Workshop, National Preservation Institute, Washington, D.C.
2006	Invited Speaker, Preservation Needs at Greenville's Springwood Cemetery, Greenville Chapter of SC Genealogical Society, Greenville, South Carolina.
2006	Preparation of landscape plan, Randolph Cemetery, Columbia, South Carolina.
2006	Treatment of markers in the Cason Plot, Long Creek Baptist Church, Warrenton, Georgia.
2006	Treatment of markers in the Watson Plot, Thomson City Cemetery, Thomson, Georgia.
2006	Treatment of markers at Trinity Cathedral, Columbia, South Carolina (second phase).
2006	Assessment and Preservation Plan, Old Athens Cemetery, University of Georgia, Athens, Georgia.
2006	Preparation of Treatment Plan, Terrell Tomb, Sparta, Georgia.
2006	Emergency conservation treatment, Settler's Cemetery, City of Charlotte, North Carolina.
2006-2007	Preservation Assessment and Recordation, St. Elizabeth's Cemetery, Washington, DC (for General Services Administration).
2006-2007	Preservation Assessment, three Raleigh Cemeteries, Raleigh, North Carolina.
2007	Historic research, Randolph Cemetery, Columbia, South Carolina.
2007	Treatment of Monuments at Laurelwood Cemetery, Rock Hill, South Carolina.
2007	Assessment of markers, Machpelah Cemetery, Lincoln County, North Carolina.

2007	Assessment of Moss Family Cemetery, Stanly County, North Carolina.
2007	Treatment of Monuments at the Old Athens Cemetery, University of Georgia, Athens, Georgia.
2007	Treatment of markers at Trinity Cathedral, Columbia, South Carolina (third phase).
2007	Invited Speaker, Annual Conference of the South Carolina African American Heritage Commission, Mars Bluff, South Carolina.
2007	Instructor, Cemetery Preservation: Making Good Choices Workshop, National Preservation Institute, Greensboro, North Carolina.
2007	Treatment of markers at Machpelah Cemetery, Lincoln County, North Carolina.
2007	Assessment of markers, St. Johns Cemetery, Richmond, Virginia.
2007	Preservation Assessment, Village Cemetery, Newberry, South Carolina.
2007	Instructor, Cemetery Preservation: Making Good Choices Workshop, Lincolnton Historical Society, Lincolnton, North Carolina.
2007	Treatment of markers, Settler's Cemetery, Charlotte, North Carolina.
2007	Assessment of markers, Unitarian Church Cemetery, Charleston, South Carolina.
2007	Preparation of Conservation Scope of Work (cemetery stones), Chalmette National Cemetery, Louisiana (for Lord, Aeck & Sargent, Ann Arbor, Michigan).
2007	Preservation Assessment and Assessment of markers, Mann Family Cemetery, North Attleboro, Massachusetts.
2007	Treatment of the Pringle Vault, City Cemetery, Sandersville, Georgia.
2007	Assessment of the Plunk Family Cemetery, Lincolnton, North Carolina.
2007	Assessment of City Cemetery, South Bend, Indiana.
2007	Assessment of Magnolia Cemetery, Mobile, Alabama.
2007	Treatment of the Middleton family vault, Middleton Plantation, Dorchester County, South Carolina.
2007	Treatment of ledgers in family cemetery, Augusta, Georgia.
2007	Consultant, National Trust for Historic Preservation, Southern Field Office, Tornado damage at Oak View Cemetery, Americus, Georgia.

2007-2008	Treatment of markers at Richardson Cemetery, Clarendon County, South Carolina (third phase).
2008	Assessment of the Coleman-Leigh-Warren Family Cemetery, Augusta, Georgia.
2008	Assessment of three city cemeteries, Thomasville, Georgia.
2008	Assessment of Cottage Cemetery, Augusta, Georgia.
2008	Assessment, South View Cemetery, Atlanta, Georgia.
2008	Treatment of Mitchem Family Cemetery stones, Clarendon County, South Carolina.
2008	Preparation of Conservation Scope of Work (brick, iron, stucco), Chalmette National Cemetery, Louisiana (for Lord, Aeck & Sargent, Ann Arbor, Michigan).
2008	Treatment of stones at Unitarian Church Cemetery, Charleston, South Carolina (first phase).
2008	Treatment of vandalized stones at Trinity Cathedral Church Cemetery, Columbia, South Carolina.
2008	Consultant, Dantzler Plantation, regarding brickwork, stucco, and rising damp, Holly Hill, South Carolina.
2008	Assessment, Christ Church Cemetery, Greenville, South Carolina.
2008	Treatment of stones at Magnolia Cemetery, Mobile, Alabama (first phase).
2008	Instructor, Cemetery Preservation: Making Good Choices Workshop, National Preservation Institute, Jacksonville, Florida.
2008	Treatment of Monuments at the Old Athens Cemetery, University of Georgia, Athens, Georgia (second phase).
2008	Treatment of Newman Swamp Methodist Church stones, Florence County, South Carolina.
2008	Treatment of Rehoboth Cemetery stone, Clarendon County, South Carolina.
2008	Penetrometer survey and mapping of Old Brick Church Cemetery, Fairfield County, South Carolina.
2008	Consultant, National Trust for Historic Preservation, Southern Field Office, Tornado damage at Oak View Cemetery, Atlanta, Georgia.

2008-2009	Assessment and preservation plan for three City of Suwanee cemeteries, Suwanee, Georgia (includes GPR and mapping in association with GEL Geophysics, Charleston, South Carolina).
2008-2009	Assessment and preservation plan for city cemetery, Jonesborough, Tennessee.
2008-2009	Conservation assessment of Orleans City Cemetery, Orleans, Massachusetts.
2009	Treatment of monuments at Settler's Cemetery, Charlotte, North Carolina.
2009	Treatment of monuments at Magnolia Cemetery, Mobile, Alabama (second phase).
2009	Treatment of monuments at the Old Athens Cemetery, University of Georgia, Athens, Georgia (third phase).
2009	Assessment and preservation plan for St. Elizabeths Hospital, East Camus Cemetery, Washington, DC.

National Register Nominations of Cemeteries

1999	Preliminary Multi-Property Nomination, African American Cemeteries of Petersburg, Virginia. Submitted to Virginia Department of Historic Resources, Richmond, Virginia (with Sarah Fick, Preservation Consultants).
2000	National Register Nomination, King Cemetery, Charleston County, South Carolina. Submitted to South Carolina State Historic Preservation Office, SC Department of Archives and History, Columbia.
2002	National Register Nomination, Scanlonville or Remley Point Cemetery, Charleston County, South Carolina. Submitted to South Carolina State Historic Preservation Office, SC Department of Archives and History, Columbia.
2005	Preliminary Information Form – Hopkins Family Cemetery, Richland County, South Carolina. Submitted to South Carolina State Historic Preservation Office, SC Department of Archives and History, Columbia.
2007	Preliminary Information Form – Harts Bluff African American Cemetery, Wadmalaw Island, Charleston County, South Carolina. Submitted to South Carolina State Historic Preservation Office, SC Departmen

Cemetery Preservation Plans

Historical Research

Identification of Grave Locations and Mapping

Condition Assessments

Treatment of Stone and Ironwork

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